DERBI

BALAS ROJAS

WORKSHOP MANUAL
GPR 125c.c. RACING

INTRODUCTION

This manual has been produced by Nacional Motor, S.A.U. for use by DERBI dealer and sub-agency workshops. It is assumed that those using this publication for training purposes and for repairing DERBI machines have a basic knowledge of mechanics and of the methods inherent in the technique of vehicle repair. Significant variations in the characteristics of the machines or in the specific repair operations will be communicated by means of updates to this manual.

Completely satisfactory work cannot however be carried out without the availability of suitable facilities and tools, which is why we ask you to consult the pages of this manual referring to special tools and implements.

Particularly important items of information in this manual are distinguished by the following annotations:

N.B.
INDICATES A NOTE GIVING KEY INFORMATION, MAKING THE PROCEDURE EASIER AND CLEARER.

ATTENTION
INDICATES SPECIFIC PROCEDURES THAT MUST BE FOLLOWED TO PREVENT DAMAGE TO THE MACHINE.

WARNING
INDICATES SPECIFIC PROCEDURES THAT MUST BE FOLLOWED TO AVOID POSSIBLE INJURIES TO THE PERSON REPAIRING THE MACHINE.

NACIONAL MOTOR, S.A.U.

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GENERAL INFORMATION

REGULATIONS

This section describes the machine's general safety and maintenance work rules.

SAFETY REGULATIONS

In the event of having to carry out work on the engine while this is running, ensure that the area is well ventilated, where possible using extractor fans. Never leave engines running in closed spaces. Exhaust gases are poisonous.

Petrol is extremely inflammable and in certain conditions may explode. Smoking must not be allowed in the work area, nor should there be naked flames or sparks.

MAINTENANCE REGULATIONS

- Use genuine DERBI spare parts and lubricants recommended by the Manufacturer. Non-genuine or unauthorised parts may damage the engine.

- Always use new gaskets and oil seals during re-assembly.

- After dismantling, clean the components with solvents that are non-inflammable or with a high flammability point. Lubricate all working surfaces before re-assembling, excluding tapered joints.

- After re-assembly, check that all components have been correctly fitted and that they are functioning perfectly.

- For dismantling, checking and re-assembly operations, use only tools with metric measurements. Metric screws, nuts and bolts are not interchangeable with imperial measurement joining devices. Using unsuitable tools and joining devices may damage the engine.

- In the case of work on the engine involving the electrical circuitry, check that electrical connections have been correctly fitted.

MAINTENANCE REGULATIONS

Use genuine DERBI spare parts and lubricants recommended by the Manufacturer. Non-genuine or unauthorised parts may damage the machine.

Only use the specific tools intended for this machine.
During re-assembly, always use new seals, gaskets, piston rings and grommets.

After dismantling, clean the components with solvents that are non-inflammable or that have a high flammability point. Grease all working surfaces before assembling, excluding tapered joints.

After assembly, check that all components have been correctly fitted and that they are functioning perfectly.

For dismantling, checking and re-assembly operations, use only tools with metric measurements. Metric screws, nuts and bolts are not interchangeable with imperial measurement joining devices. Using unsuitable tools and joining devices may damage the machine.

In the case of work on the machine's electrical circuitry, check that electrical connections have been correctly fitted, especially the earth connections.

VEHICLE IDENTIFICATION

VEHICLE	CHASSIS CODE	ENGINE CODE
GPR 125 Racing	VTHGS1A1A?Hxxxxxx	E1 19Exxxxxx

GENERAL TECHNICAL DATA

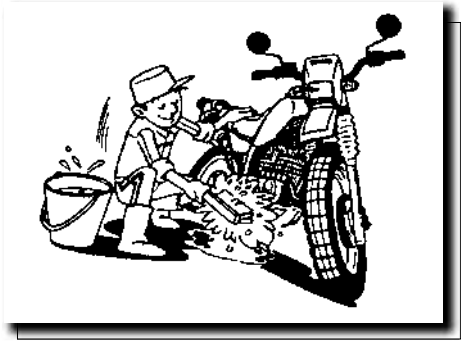
RACING 125 GENERAL TECHNICAL DATA

Engine	Single cylinder 2-stroke EURO 2
Diameter x stroke	56,0 x 50,7 mm
Cylinder capacity	124,9 cm3
Carburettor	Mikuni TM 28-92
Cooling	Liquid
Starting	Electric
Compression ratio	12,5 : 1
Maximum power	11 kW (14.9 HP) / 8.000
Fuel	Lead-free petrol
Greasing system	Wet crankcase
Ignition	Ignition D.I.U-
Spark plug	NGK BR8ES
Primary transmission	Gears
Clutch	Multi-disk
Gears	6 speed
Front suspension	40 mm Ø hydraulic fork. 110 mm travel
Rear suspension	Single shock absorber. 14mm Ø rod. 110 mm travel
Tyres	140/70 x 17"
Front disk brake	300 mm hydraulic disk
Rear disk brake	180 mm Ø hydraulic disk
Battery	12 V 4 Ah
Distance between axles	1.355 mm
Height	1.160 mm
Length	2.024 mm
Width	720 mm
Fuel tank	13 L.

GENERAL TECHNICAL DATA

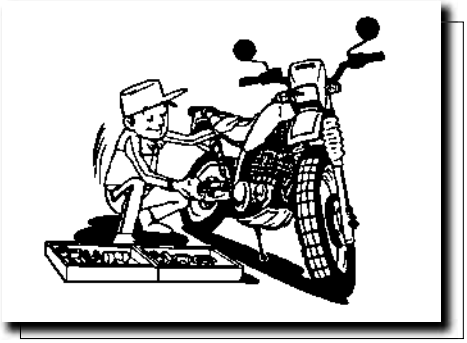
PREPARATION FOR REMOVAL AND DISMANTLING

1. Remove all the dirt, grime, dust and other foreign material before removing and dismantling.



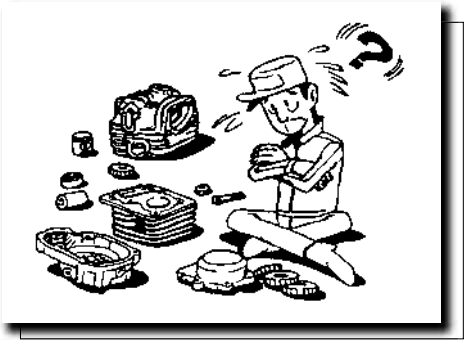
2. Use proper cleaning tools and equipment.

See "**SPECIAL TOOLS**".

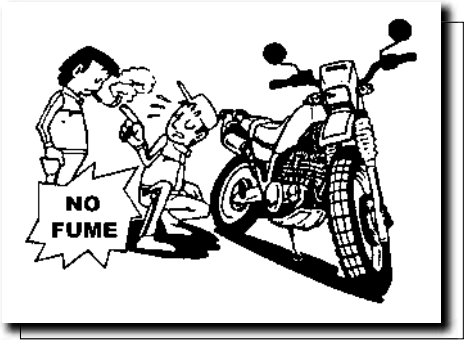


3. On dismantling the motorcycle, always keep paired parts together. This includes gears, cylinders, pistons and other parts submitted to natural wear in pairs. Paired parts must always be reassembled or replaced together.

4. While dismantling the motorcycle, clean all the parts and lay them out on trays in the order dismantled. This speeds up reassembly and ensures the correct fitting of all the parts.

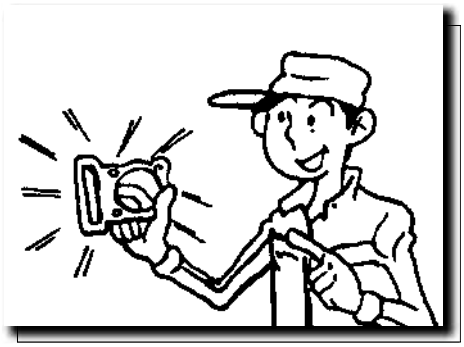


5. Keep all parts away from any contact with fire.



GENERAL TECHNICAL DATA

SPARE PARTS



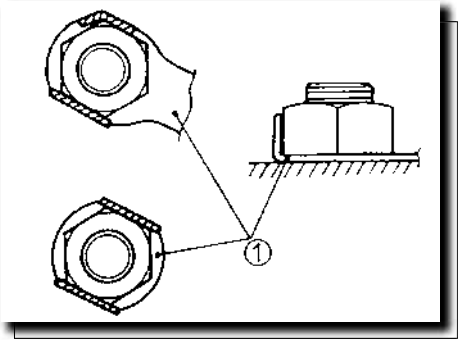
1. Use only genuine DERBI spare parts. For all lubrication tasks use oils and greases recommended by DERBI. Other makes may seem similar in their function and appearance, but are inferior in quality.

SEALS, RETAINING RINGS AND O-RINGS

1. Replace all seals, retaining rings and O-rings when servicing the engine.
All surfaces receiving seals, retaining ring edges and O-rings must be cleaned.

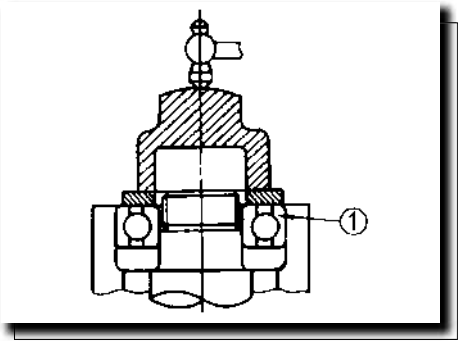
2. Apply oil to all paired parts and bearings during reassembly. Apply grease to the retaining ring edges.

TAB WASHERS/SPACERS AND SPLIT PINS



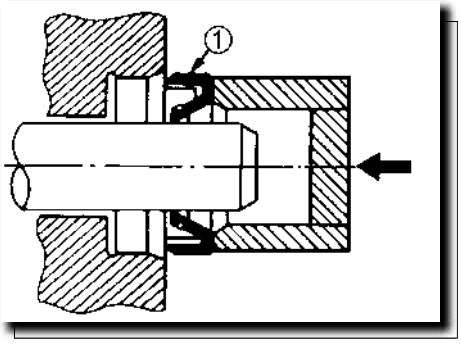
1. After removing them, renew all tab/spacer washers (1) and split pins. Bend the tabs to fit the flat surfaces of the bolt or nut once they have been tightened to the specified torque.

BEARINGS AND RETAINING RINGS



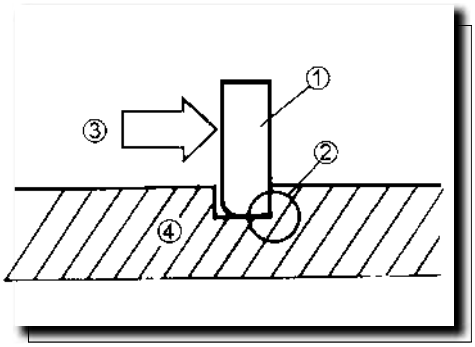
1. Fit bearings and retaining rings in such a way that the manufacturers marks remain visible. On fitting retaining rings, applying a thin film of light lithium soap based grease to their edges. Where required, apply oil generously when fitting bearings.

WARNING
DO NOT USE COMPRESSED AIR TO DRY BEARINGS. THIS WILL DAMAGE TO THE BEARING SURFACES.



GENERAL TECHNICAL DATA

LOCKING RINGS



1. Examine all the locking rings carefully before fitting. Always replace the gudgeon pin circlips after every use. Replace distorted locking rings. On fitting a locking ring (1), ensure that the sharp edge (2) is on the opposite side to the force (3) to be applied to it.

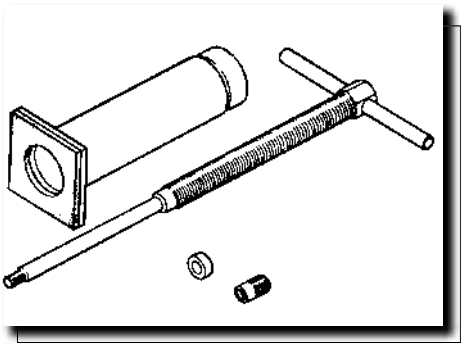
See the figure on the side, (4) Axle.

SPECIAL TOOLS

The following special tools are needed for assembly and for complete and exact adjustments. Only use the proper special tools; thereby avoiding damage caused by the use of unsuitable tools or improvised techniques.

1.00M12501258

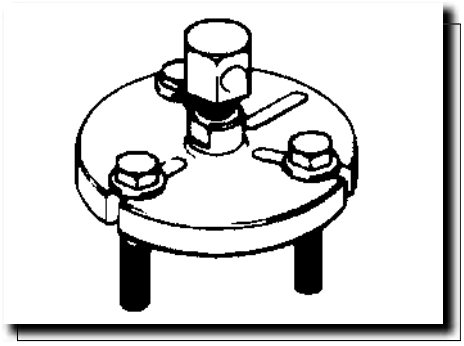
Gudgeon pin extractor.



This tool is used for dismantling the gudgeon pin.

00M12501259

Magneto flywheel extractor.



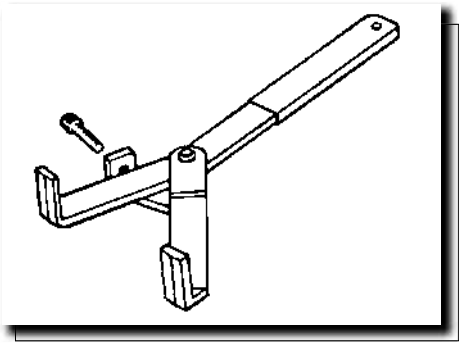
This tool is used for dismantling the magneto flywheel.

GENERAL TECHNICAL DATA

3. 00M12501260

Clutch holder.

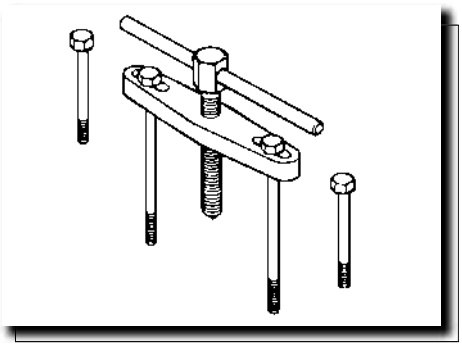
This tool is used to hold the clutch assembly when fitting or dismantling its axle nut.



4. 00M12501261

Crankcase separator.

This tool is used to separate the crankshaft from the case.



4. 00H05100181

40 mm fork seal inserting tool

This tool is used for inserting the seals into the forks, as described in the corresponding section.

MAINTENANCE SPECIFICATIONS

GENERAL SPECIFICATIONS

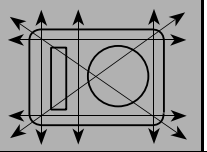
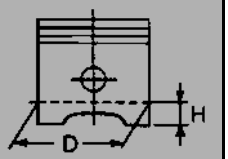
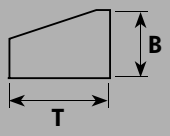
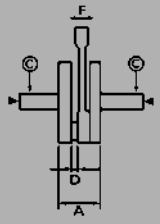
MODEL	GPR 125 Racing
BASIC WEIGHT With oil and full fuel tank	131 kg
TYPE OF FLUID Engine oil	AGIP CITY 2-stroke API SJ « DONUT» + JASO MA - PART SYNTHETIC oil, SAE Viscosity: SAE 10W30 or higher
OIL CAPACITY Engine oil. Regular oil change. Total capacity	 0,75 L. 0,8 L.
AIR FILTER	Wet-type element
FUEL Type Fuel tank capacity Reserve volume	 Lead free petrol (95 octane or higher) 12 L. 2 L.
CARBURETTOR Type Manufacturer	 TM 28-92/1 MIKUNI
SPARK PLUG Type / Manufacturer Gap between the electrodes	 NGK BR8ES 0.7 mm.
CLUTCH TYPECLUTCH TYPE	Wet, multi-disk.
TRANSMISSION Primary reduction system Primary reduction ratio Secondary reduction system Secondary reduction ratio Type of transmission Operation Gear ratio 1 2 3 4 5 6	 Helicoidal gears 71/22 (3.227) Transmission chain 57/16 (3.563) Constant gearing, 6 speed With the left foot 34/12 (2.883) 30/16 (1.875) 24/17 (1.412) 24/21 (1.143) 22/23 (0.957) 18/22 (0.818)
CHASSIS Frame type Caster angle Trail	 Delta Box 26.4° 109 mm.

MAINTENANCE SPECIFICATIONS

MODEL	GPR 125 Racing
NEUMÀTICOSTYRES	
Size	Tubeless
Front	110/80 – 17 "
Rear	140/70 – 17"
TYRE PRESSURES (COLD)	
Rider only	
Front	170 kPa (1,7 kg/cm2)
Rear	190 kPa (1,9 kg/cm2)
Rider and passenger	
Front	190 kPa (1,9 kg/cm2)
Rear	210 kPa (2,1 kg/cm2)
FRENO	
Front brake	
Type	300 mm Ø disk. VENTILATED
Operation	With the right hand
Front brake	
Type	180 mm Ø disk. VENTILATED
Operation	With the right foot
SUSPENSION	
Front suspension	Hydraulic fork
Rear suspension	Swnging arm + hydraulic shock absorber
SUSPENSION TRAVEL	
Front	110 mm
Rear	110 mm
ELECTRICAL SYSTEM	
Ignition system	DIU
Charging system	Magneto flywheel
Battery type	Yuasa MF YTX5L-BS
Battery capacity	12v 4Ah
BULB VOLTAGE AND WATTAGE PER QUANTITY	
Headlight	12v 35W dip H11
	12v 35W main beam H11
Frontt side-light	12v 2.3W
Rear side/brake light	12v 2,3W/16W
Front turn indicators	12v 10Wx2
Rear turn indicators	12v 2.3Wx2
INDICATOR LIGHTS	
Water temperature indicator	LED
Oil indicator	LED
Fuel indicator	LED
Main beam indicator	LED
Turn indicators pilot light	LED

MAINTENANCE SPECIFICATIONS

ENGINE SPECIFICATIONS

MODEL	GPR 125 Racing
CYLINDER HEAD <Distortion limit> 	<0,03 mm> * The lines indicate measurement at a right angle
CYLINDER Diameter	56,00 ~ 56,02 mm
Conicity limit Ovality limit	0,05 mm 0,01 mm
PISTON Cylinder-piston play <Limit> Diameter of piston "D"  Measurement point "H" Piston off-set	0.045 ÷ 0.050 mm <0.10 mm> 55.950 ÷ 55.955 mm 10 mm 0,5 mm
PISTON RINGS Top ring: Type  Dimensions (BxT) Top ring (ignition) Bottom ring Gap between points (fitted) Top ring Bottom ring Side play (fitted) Top ring Bottom ring	Keystone 1.2 x 2.4 mm 1.2 x 1.89 mm 0.300 ÷ 0.450 mm 0.300 ÷ 0.450 mm 0.020 ÷ 0.060 mm 0.035 ÷ 0.070 mm
CRANKSHAFT  Width "A" <Warp limit "C"> Connecting rod bottom play "D" < Connecting rod top play limit "F">	57.90 ÷ 57.95 mm <0.03 mm> 0.2 ÷ 0.7 mm <0.026 ÷ 0.040 mm>

MAINTENANCE SPECIFICATIONS

MODEL	GPR 125 Racing
CLUTCH	
Thickness of friction disks	2.9 ÷ 3.1 mm
Quantity	7 parts
<Friction disk wear limit>	2.7 mm
Thickness of the separators	1.05 ÷ 1.35 mm
Quantity	6 parts
<Distortion limit>	0.05 mm
Free length of clutch spring	34.5 mm
Quantity	5 parts
Minimum length	32 mm
Clutch freeing method	Internal by lever system
Actioning rod warp limit	<0.15 mm>
GEAR SELECTOR	
Type	Selector and guide bar
CARBURETTOR	
Type	TM 28-92/1
ID mark	1 DO
Main jet	#210
Main pneumatic jet	0.7
Jet needle	5J40 – 2
Needle jet	Q2M (#939)
Pilot outlet	0.6
Pilot jet	#17.5
Bypass1	1.6
Pilot screw (turns)	¼
Valve seat size	2.8
Choke jet 1	#40
Choke jet 2	#60
Float height	15.5 ÷ 16.5 mm
Chamber level	1.5 ÷ 2.5 mm
Engine idle speed	1250 ÷ 1450 rpm
LUBRICATION SYSTEM	
Colour code	Dark blue
Minimum run	0.15 ÷ 0.20 mm
Maximum run	1.85 ÷ 2.05 mm
Minimum output	0.38 ÷ 0.50 cm3
Maximum output	4.65 ÷ 5.15 cm3
Pulley adjustment mark	Self-adjusting
REED VALVE	
Valve thickness	0.5 mm
Stop plate heigh	8.8 mm
Valve bend limit	0.5 mm

TIGHTENING TORQUES

ENGINE TIGHTENING TORQUES

PARTS TO BE TIGHTENED		AMNT.	THREAD SIZE	TIGHTENING TORQUE		OBSERVATIONS
				Nm	m.Kg	
Spark plug		1	M14 x 1.25	20	2.0	
Cylinder head	Cap nuts	5	M8 x 1.25	22	2.2	
Cylinder	Stud bolt	9	M8 x 1.25	13	1.3	LOCTITE bolt securing adhesive
	Nut	4	M8 x 1.25	28	2.8	
Exhaust valve support, valve cover	Seal					
	Stud	6	M5 x 0.8	7	0.7	
Exhaust valve pulley	Stud		M6 x 1.0	10	1.0	
Thermostat valve cover	Bolt	3	M6 x 1.0	8	0.8	
Water pump cover	Bolt	2	M6 x 1.0	8	0.8	
	Water drain bolt	1	M6 x 1.0	10	1	
Radiator	Stud	2	M6 x 1.0	8	0.8	
Radiator cover	Bolt	1	M5 x 0.8	5	0.5	
Oil pump	Bolt	2	M5 x 0.8	5	0.5	
Carburettor gasket	Stud	4	M6 x 1.0	8	0.8	
Air filter	Bolt	2	M6 x 1.0	5	0.5	
Silencer	Nut	2	M8 x 1.25	18	1.8	LOCTITE bolt securing adhesive
	Stud bolt	2	M8 x 1.25	10	1.0	
	Stud	3	M6 x 1.0	8	0.8	
Oil change drain plug		1	M8 x 1.25	15	1.5	
Left hand crankcase cover	Bolt	6	M6 x 1.0	5	0.5	
Right hand crankcase cover	Bolt	6	M6 x 1.0	8	0.8	
Oil pump cover	Bolt	3	M6 x 1.0	5	0.5	
Crankcase	Bolt	12	M6 x 1.0	8	0.8	
Oil seal support	Bolt	1	M8 x 1.25	16	1.6	
Cover	Bolt	2	M6 x 1.0	8	0.8	
Clutch housing	Nut	1	M12 x 1.0	70	7	
Clutch spring	Stud	5	M5 x 0.8	6	0.6	
Clutch disk cover	Bolt	2	M6 x 1.0	10	1	

TIGHTENING TORQUES

PARTS TO BE TIGHTENED		AMNT.	THREAD SIZE	TIGHTENING TORQUE		OBSERVATIONS
				Nm	m.Kg	
Drive sprocket	Nut	1	M6 x 1.0	60	6	
Tachometer cog housing	Stud	1	M6 x 1.0	5	0.5	
Stop lever	Stud	1	M6 x 1.0	14	1.4	LOCTITE bolt securing adhesive
Change pedal	Stud	1	M6 x 1.0	15	1.5	
Starter motor						
Rotor		1		15	1.5	
	Nut	1	M12 x 1.25	80	8	

CHASSIS SPECIFICATIONS

MODEL	GPR Racing 125 c.c.
STEERING SYSTEM	
Type of steering bearing	Rigid ball bearing
FRONT SUSPENSION	
Free length of forks spring	851 mm
<Limit>	845 mm
Spring strength	20 N/mm
Travel	110 mm
Oil/bar capacity	340 cm3
Type of oil	FSAE 7.5W fork oil or higher
REAR SUSPENSION	
Shock absorber travel	34 mm
Free length of spring	140 mm
Length of spring fitted	130 mm
Spring strength	100 N/mm (0<32 mm)
	170 N/mm (32<50 mm)
REAR SWINGING ARM	
<Play limit> At the end	<1,0 mm>
At the side	<1,0 mm>
FRONT WHEEL	
Type	Injected metal
Wheel size	17"
Wheel material	Aluminium alloy
<Wheel distortion limit>	<0.5 mm>
Radial Side	<0.5 mm>
REAR WHEEL	
Type	Injected metal
Wheel size	17"
Wheel material	Aluminium alloy
<Wheel distortion limit>	<0.5 mm>
Radial Lateral	<0.5 mm>
DRIVE CHAIN	
Number of links	130
ChaIn play.	11 mm

CHASSIS SPECIFICATIONS

MODEL	GPR Racing 125 c.c.
FRONT DISK BRAKES	
Type	VENTILATED hydraulic disk
Disk width	4.0 mm
<Wear limit>	3.5 mm
Brake pad thickness	4.5 mm
<Wear limit>	1.5 mm
REAR DISK BRAKES	
Type	VENTILATED hydraulic disk
Inner diameter of brake drum	4.0 mm
<Wear limit>	3.5 mm
Brake shoe thickness	4.5 mm
<Wear limit>	1.5 mm
LEVERS AND TWISTGRIP	
Brake lever clearance (at the end)	10 ~ 15 mm
Clutch lever clearance (at the end)	10 ~ 15 mm
Throttle twist grip clearance	2 ÷ 6 mm

ELECTRICAL SYSTEM SPECIFICATIONS

MODEL	GPR 125 Racing
VOLTAGE	12V
Ignition system:	
Ignition point (B.T.D.C)	17 ° a 1.500 rpm
Advance type	Digital
DIU	
Model of magneto/manufacturer	F4FU/YAMAHA
Detector coil resistance	310 Ω ± 20% W/R-W/L
Generator coil resistance	730 Ω ± 20% B/R-G/W
Generator coil resistance	600 Ω ± 20% G/L-G/W
Model of DIU/manufacturer	1D0/YAMAHA
IGNITION COIL	
Model	3RW/YAMAHA
Primary winding resistance	0.23 Ω ± 20%
Secondary winding resistance	7.9 k Ω ± 20%
SPARK PLUG CONNECTOR	
Type	Resin
Resistance	5KΩ ± 20% a 20° C
CHARGING SYSTEM	
Type	Magneto
Magneto flywheel Model/Manufacturer	F4FU / YAMAHA
Output	14V 170 W 5000 rpm
Charging coil resistance (colour of the conductors)	0.6Ω ± 20% a 20° C W-W
LIGHTING VOLTAGE (Min)	12V / 3.000 rpm
(Max)	15V / 8.000 rpm
RECTIFIER/ REGULATOR	
Type	Shortcircuit type semiconductor
Model	SH629B-11/SHINDENGEN
Voltage regulated without charge	14.1 ~ 14.9 V
Capacity	25 A
Resistance limit voltage	200 V

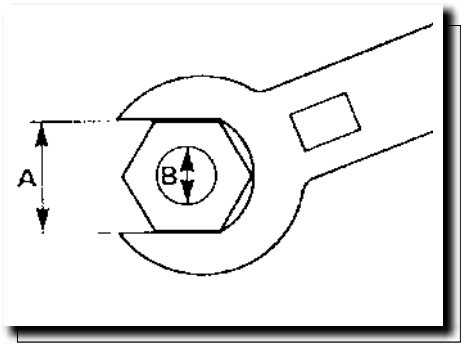
ELECTRICAL SYSTEM SPECIFICATIONS

MODEL	GPR 125 Racing
HORN	
Type	Flat
Quantity	1
Maximum current	1,5 A (12V)
TURN INDICATOR RELAY	
Frequency	65 ~ 100 cycles/mínute
Power	10W x 2
SAFETY CIRCUIT	
Type	Fuse
Individual circuit current x quant.	
Main	15A x 1
Reserve	7,5A x 1
STARTER RELAY	
Type	Electromagnetic
Model	12 V 180 A
Nominal voltage	12 V
Minimum functioning voltage	8 V
Coil resistance	4.2 ~ 4.6 Ω a 20 °C
STARTER MOTOR	
Output power	0.2 kW
Length of the brushes	5x7x7 mm
<Limit>	<3.5 mm>
Spring pressure	4.9 N ± 20%
Commutator diameter	17.6 mm
<Limit>	<16.6mm>
Depth of the mica	1.35 mm

GENERAL TIGHTENING TORQUE SPECIFICATIONS

The following table specifies torques for standard ISO fixing devices. The torque specifications for special components or assemblies are indicated in the respective chapters of this manual.

To prevent distortions, tighten assemblies with various fixing devices progressively and in a crossed or alternating manner until the specified torque is reached. Unless stated otherwise, the specified torques require threads to be clean and dry. Components should be at room temperature.



A: Distance between flat surfaces.

B: Outer diameter of the thread.

(A) NUT	(B) BOLT	GENERAL TORQUE SPECIFICATIONS		
		N·m	Kgf.m	ft.lb
10 mm	6 mm	6	0,6	4,3
12 mm	8 mm	15	1,5	11
14 mm	10 mm	30	3,0	22
17 mm	12 mm	55	5,5	40
19 mm	14 mm	85	8,5	61
22 mm	26 mm	130	13,0	94

GENERAL TIGHTENING TORQUE SPECIFICATIONS

CHASSIS TIGHTENING TORQUES

DESCRIPTION OF SECURING DEVICE	TIGHTENING TORQUE (m-Kg)	MAX. TORQUE (m-Kg)
M6x100 INSTRUM.-CHASSIS SUPPORT SECURING DEV.	0,8-1	1
M10xl.5 10.9 TOP SEC. SHOCK-CHASSIS SEC.DEV.	4,5-5,5	5,5
MI0x1.5 10.9 SHOCK-SWING.ARM BOTTOM SEC.DEV.	4,5-5,5	5,5
M8x1.25 12.9 ENGINE-CHASSIS CRADLE SEC. DEV	2,5-2,9	2,9
M8x1.25 8.8 REAR SUBCHASSIS – CHASSIS SEC.DEV.	1,7-1,9	1,9
M8X125 12.9 CYL.HEAD BRACE-CHASSIS SEC.DEV.	2,5-2,9	2,9
M8x125 12.9 REAR ENGINE-CHASSIS SEC.DEV.	2,5-2,9	2,9
M10x150 12.9 FRONT ENGINE-CHASSIS SEC.DEV.	5,5-5,9	5,9
M8x125 12.9 ENGINE CYL.HEAD-BRACE SEC.DEV.	2,5-2,9	2,9
M14x200 SWINGING ARM AXLE- CHASSIS SEC.DEV.	7-8	8
M8x1.25 RIDER FOOTREST SUPPORT-CHASSIS SEC.DEV.	1,7-1,9	1,9
M8x1.25 PILLION FOOTREST SUPPT.-CHASSIS SEC.DEV.	1,7-1,9	1,9
M8x1.25 FOOTREST SUPPT. SCTO.- RIDER FOOTREST S.D.	1,7-1,9	1,9
M20x100 STEERING FORK - CHASSIS SEC.DEV.	3-3,5	3,5
M8x125-8 EXHAUST PIPE-CYLINDER SEC.DEV.	1,7-1,9	1,9
M8x125-8 EXHAUST PIPE-CHASSIS SEC.DEV	1,7-1,9	1,9
SILENCER-SUPPORT SEC.DEV.		
STEERING LOCK-FORK PLATE SEC.DEV. M8xl25	1,7-1,9	1,9
M8x125 TOP PLATE LOCK SEC. DEV.	1,7-1,9	1,9
M5x80 COUNTERWEIGHT-HANDLEBARS SEC.DEV.	0,35-0,45	0,45
M8x125 SEMI-HANDLEBAR – PLATE SEC.DEV.	1,7-1,9 Sealed	1,9
HANDLEBAR PLATE – PLATE SEC.DEV.	1,7-1,9	1,9
M14x150 FRONT WHEEL – FORK SEC.DEV.	7-8	8
M8x125 FORK ARM LOCK SEC. DEV.	1,7-1,9	1,9
M10x1.5 FRONT BRAKE CALLIPER – FORK SEC.DEV.	3,5-4 Sealed	4
M16x200 REAR WHEEL – SWINGING ARM SEC. DEV.	11-13	15
M8x125 PROP STAND – CHASSIS SEC.DEV.	1,7-1,9	1,9
M6x100 10.9 REAR BRAKE DISK-WHEEL SEC. DEV.	1-1,2 Sealed	1,2
M6x100 WHEEL TENSIONER- SWINGING ARM SEC.DEV.	0,8-1	1
M8x125 10.9 DRAG PLATE- WHEEL SEC.DEV.	2,5-2,9 Sealed	2,9
M6x100 RADIATOR-CHASSIS SEC. DEV.	0,8-1	1

GENERAL TIGHTENING TORQUE SPECIFICATIONS

DESCRIPTION OF SECURING DEVICE	TIGHTENING TORQUE (m-Kg)	MAX. TORQUE (m-Kg)
M6x100 10.9 FRONT BRAKE DISK-WHEEL SEC. DEV.	1-1,2 Sealed	1,2
M10x150 10.9 BRAKE BRACE SEC. DEV.	3,5-4	4
M6x18.8 REAR BRAKE CYLINDER SEC. DEV.	0,8-1	1
4.8 AUTHOR. FAIRING SUPPORTS SEC. DEV.	0,1-0,2	0,2
4.8 AUTHOR. FAIRING COVER SEC. DEV.	0,1-0,2	0,2
M5x80 VARIOUS METAL PARTS TO CHASSIS SEC. DEV.	0,35-0,45	0,45
M6x100 VARIOUS METAL PARTS TO CHASSIS SEC. DEV.	0,8-1	1
M8xl25 VARIOUS METAL PARTS TO CHASSIS SEC. DEV.	1,5-1,9	1,9
M5x80 VARIOUS PLASTIC PARTS TO CHASSIS SEC. DEV.	0,1-0,2	0,2
M6x100 VARIOUS PLASTIC PARTS TO CHASSIS SEC. DEV.	0,2-0,35	0,35
LOCKTITE 243-TYPE THREAD SEALER		

PERIODICAL INSPECTIONS AND ADJUSTMENTS

Introduction

This chapter contains all the necessary information for carrying out recommended inspections and adjustments. If followed correctly, these preventative maintenance procedures will ensure a reliable operation of the machine and a longer operating life. The need for costly servicing will be significantly reduced. This information applies not only to machines already in service but also new machines in preparation for being sold. All technical assistance staff should familiarise themselves with the whole of this chapter.

Periodical maintenance/lubrication intervals

Nº	ELEMENT	SERVICE	1000 km/2m	5000 km/12m	10000 km/24m	15000 km/36m	20000 km/36m	25000 km/60m
1	Crankcase oil	Check level		X		X		X
2	Crankcase oil	Change	X		X		X	
3	Spark plug	Check electrode gap	X	X		X		X
4	Spark plug	Replacement			X		X	
5	Air filter	Clean	X	X	X	X	X	X
6	Carburettor	Adjust and clean	X	X	X	X	X	X
7	Coolant	Check level	X	X		X		X
8	Coolant	Change			X		X	
9	Radiator	Clean externally			X		X	
10	Mileometer resend	Lubrication	X		X		X	
11	Handlebars	Check for damage and distortion	X	X	X	X	X	X
12	Brake levers	Lubrication	X	X	X	X	X	X
13	Clutch lever	Adjust free play	X	X	X	X	X	X
14	Brake pads	Check wear	X	X	X	X	X	X
15	Flexible brake hoses	Check condition			X		X	
16	Brake liquid	Check level		X		X		X
17	Brake liquid	Change	Every 2 years					
18	Drive chain	Check condition and tension	X	X	X	X	X	X
19	Drive chain	Replacement		X	X	X	X	X
20	Security locks	Check	X		X		X	
21	Drag plate	Check the security locks		X	X	X	X	X
22	Front fork	Check	X	X		X		X

PERIODICAL INSPECTIONS AND ADJUSTMENTS

Nº	ELEMENT	SERVICE	1000 km/2m	5000 km/12m	10000 km/24m	15000 km/36m	20000 km/36m	25000 km/60m
23	Front forks	Change the oil			X		X	
24	Rear shock absorber	Check		X		X		
25	Electrical wiring	Check	X	X	X	X	X	X
26	Front headlight	Height adjustment			X		X	
27	Tyres	Check wear		X	X	X	X	X
28	Tyres	Pressure	X	X	X	X	X	X
29	Wheels	Check	X		X		X	
30	Inlet reeds	Check			X		X	
31	Cylinder head, cylinder and piston	Clean			X		X	
32	Piston segments	Check		X		X		X
33	Piston segments	Replacement			X		X	
34	Cylinder head bolts/nuts	Check tightness	X	X		X		X
35	Fuel and oil pipes	Check	X	X		X		X
36	Fuel and oil pipes	Replacement			X		X	
37	Brakes	Machine test and check	X	X	X	X	X	X
38	Oil pump	Check and purge if necessary	X		X		X	

* It is recommended that these elements are checked by an authorised DERBI dealer.

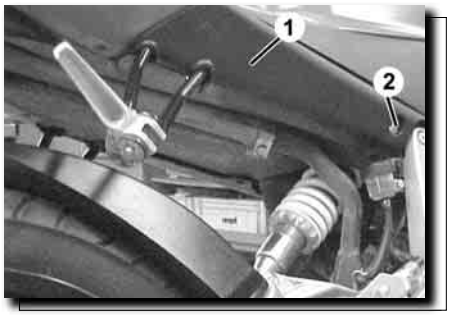
SEATS, FAIRING AND FUEL TANK

DISMANTLING

1. Extract:
- Seat.

N.B.
INSERT THE IGNITION KEY, TURN IT CLOCKWISE A QUARTER TURN AND THEN REMOVE THE SEAT.

2. Extract:
Passenger seat.
- The nut under the seat must be unscrewed.
- Pull the seat forwards.



3. Extract:
- Cowling.

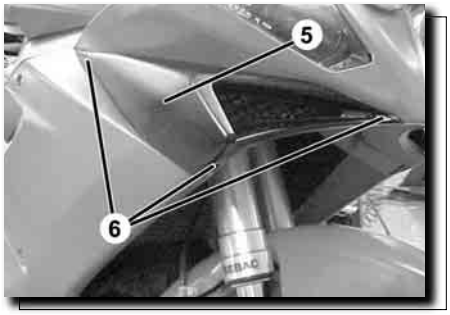
The black cover (1) in the figure must be be removed by unscrewing the bolts (2) on both sides.

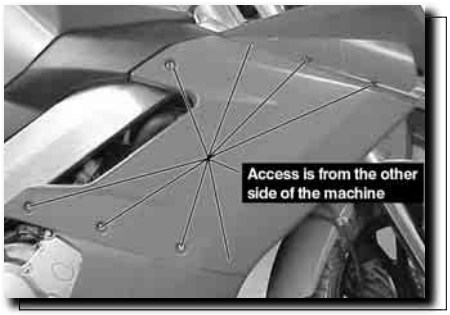
The studs (4) on both sides then need to be unscrewed, and the clamp securing the exhaust pipe. The cowling (3) can then be removed by pulling out backwards.

4. Closing:
- Dismantle:
- Top side cover.

To do so, the front air inlet (5) needs to be removed on the corresponding side together with its securing bolts (6).

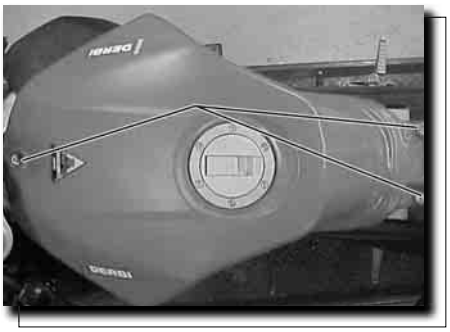
Then remove the bolts securing the cover (indicated in the fugure).



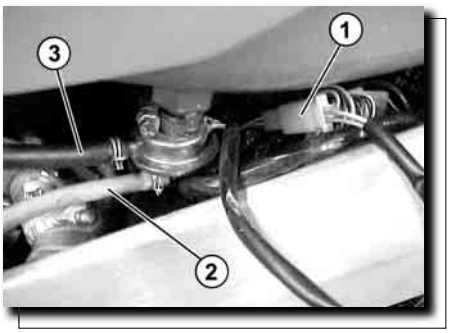


SEATS, FAIRING AND FUEL TANK

5. Dismantle:
Bottom fairing
Remove the screws located at the bottom (keel joint) and another located at the front.



6. Dismantle:
Fuel tank. Remove the 3 screws in the picture.



N.B.
THE FUELTAP WORKS BY PRESSURE. IF THIS IS WORKING PROPERLY, THE TANK DISMANTLING PROCESS IS VERY STRAIGHTFORWARD AND IS OUTLINED BELOW:
- DISCONNECT THE FUEL LEVEL SENSOR (1).
- REMOVE THE ENGINE BREATHER PIPE (2).
- REMOVE THE FUEL OUTLET PIPE (3).

IF HOWEVER THE TAP IS NOT WORKING WELL, THE PROCESS TO FOLLOW IS:
- TURN THE KEY TO THE OFF POSITION.
- DISCONNECT THE NEGATIVE BATTERY TERMINAL.
- OPEN THE FUEL TANK CAP (TO REDUCE THE PRESSURE IN THE TANK).
- EMPTY THE PETROL FROM THE TANK USING A PUMP.
- THEN FOLLOW THE PROCESS DESCRIBED PREVIOUSLY.

WARNING
THE TANK WILL NEVER BE COMPLETELY EMPTIED. TAKE CARE THEREFORE TO CLEAN UP ANY SPILLAGES THAT OCCUR, WHICH MAY DIRTY THE FAIRING OR CHASSIS.

REFITTING

- This is a reversal of the "REMOVAL" procedure.
- Take note of the following points:

Fit:
1) **Fuel tank**
2) **Bottom fairing**
3) **Front air inlet**
4) **Top side covers**
5) **Cowling**
6) **Seats.**

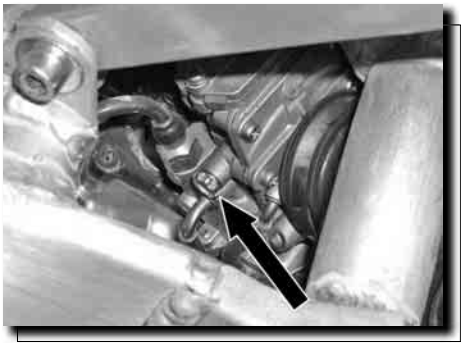
ENGINE

CO MEASUREMENT AND VACUUM RUNNING ADJUSTMENT

1. Start the engine and leave to warm up for a few minutes.

2. Connect:
-An inductive tachometer to the spark plug lead.

N.B.
THE IDLING REGULATOR IS ACCESSED FROM THE LEFT HAND SIDE OF THE MACHINE. SEE THE COVER DISMANTLING METHOD IN THE PREVIOUS SECTION.



3. Check:
- Idle speed (standard).

Outside that specified => **Adjust.**

Turn the no load running screw (1) inwards or outwards until the specified no load running is obtained.

No load running:
1.250 ~ 1.450 rpm

4. Fit:
- the CO meter into the exhaust silencer.

CO concentration:
3,0 ~ 5,0 %

Outside that specified => **Adjust.**

ENGINE

5. Adjust:
- CO concentration.

Adjustment steps:
- Turn the mixture screw inwards or outwards until the specified CO concentration is obtained.

Adjustment band:
Rub probe point~ up to 6 turns outwards.

N.B.
TURN THE NO LOAD RUNNING SCREW (2) TO ADJUST THE ENGINE'S NO LOAD RUNNING, SINCE THE CO CONCENTRATION ADJUSTMENT MAY AFFECT THE NO LOAD RUNNING.

- After adjusting, check the CO concentration and remove the CO probe. Ensure that there are no variations in the idle speed.

ADJUSTING THE THROTTLE CABLE

N.B.
BEFORE ADJUSTING THE THROTTLE CABLE, THE NO LOAD RUNNING MUST BE ADJUSTED.

1. Check:
- Throttle cable play (a).

Outside that specified => **Adjust.**

Clearance:
2÷6 mm.
In the throttle twist grip plate:

2. Adjust:
- Throttle cable play.

Adjustment steps:

N.B.
NEVER ACCELERATE WHILE THE ENGINE IS STOPPING.

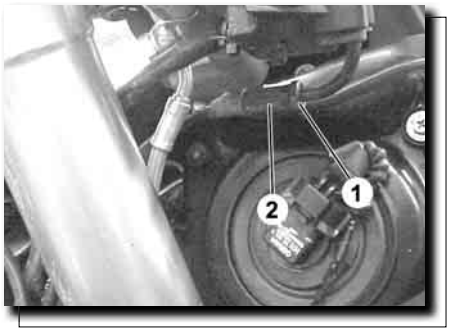
ENGINE

- Loosen the throttle cable locknut (2).

- Turn the adjuster (1) inwards or outwards until the specified play is obtained.

Turning inwards (a) = **Increasing the play.**
Turning outwards (b) = **Reducing the play.**

- Tighten the locknut.



N.B.
IF THE PLAY IS STILL INCORRECT, ADJUST IT USING THE ADJUSTER BELOW THE TWIST GRIP.

WARNING
AFTER ADJUSTMENT, TURN THE HANDLE IN BOTH DIRECTIONS TO ENSURE THAT THERE IS NO NO-LOAD VARIATION .

INSPECTING THE SPARK PLUG

1. Extract:
- Spark plug connector.

- Spark plug.

ATTENTION
BEFORE REMOVING THE SPARK PLUG, BLOW AROUND IT WITH COMPRESSED AIR TO REMOVE ANY DIRT, THEREBY PREVENTING THIS FROM FALLING INTO THE ENGINE.

2. Check:
- Spark plug type

Incorrect => **Replace.**

Standard spark plug:
NGK BR8ES

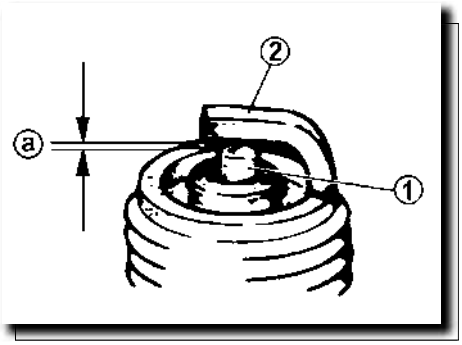
3. Inspect:
- Electrode (1).

Damage/wear => **Replace.**

- Insulator (2).

Abnormal colour => **Replace.**

The normal colour is light brown.



ENGINE

4.Clean:
- Spark plug
(Clean the spark plug with a spark plug cleaner or wire brush)

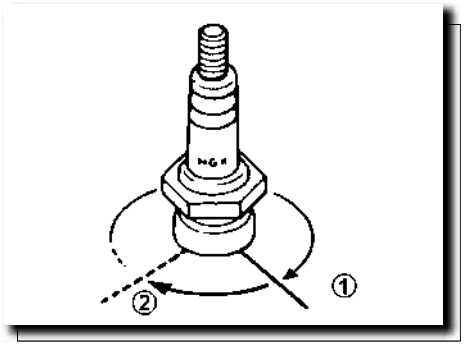
5. Measurement:
- Gap between the electrodes (a), (using a feeler guage).

Outside that specified => **Adjust the gap.**

Gap between electrodes:
0,7 mm

6. Fit:
- Spark plug

Spark plug:
20 N.m (2 kgf.m)



N.B.
- BEFORE REFITTING THE SPARK PLUG, CLEAN ITS SEATING SURFACE AND GASKET.

- IF NO TORQUE WRENCH IS AVAILABLE, A GOOD WAY OF JUDGING THE CORRECT TORQUE IS TO TIGHTEN (1) THE SPARK PLUG BY HAND AND THEN TIGHTEN IT FROM ¼ TO ½ A TURN – AS FAR AS (2).

- ALWAYS USE A NEW GASKET.

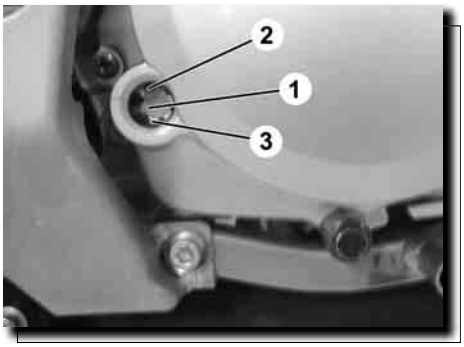
ENGINE

INSPECTING THE ENGINE OIL LEVEL

1. Place the motorcycle on a flat surface.

N.B.
MAKE SURE THE MOTORCYCLE IS VERTICAL WHEN CHECKING THE OIL LEVEL.

2. Start the engine and leave to warm up for a few minutes.



3. Stop the engine.

4. Check the oil level in the inspection window (1) (located in the right hand crankcase cover).

N.B.:
THE OIL LEVEL MUST BE BETWEEN THE MAXIMUM (2) AND THE MINIMUM (3).

5. If the oil is below the minimum level, add oil up to the correct level.

RECOMMENDED OIL FOR THE ENGINE

Recommended oil for the engine:
SAE 10W40 or higher

6. Start the engine and leave to warm up for a few minutes.

7. Stop the engine.

N.B.
WAIT A FEW MINUTES FOR THE OIL TO PERCOLATE DOWN BEFORE RE-CHECKING THE OIL LEVEL.

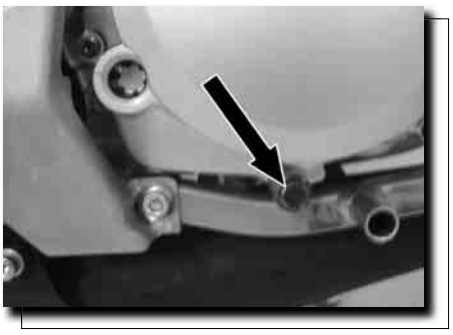
CHANGING THE ENGINE OIL

1. Start the engine and leave to warm up for a few minutes.

2. Stop the engine and place a container under the engine.

3. Extract:
- Oil filler cap (1).
- Oil drain plug (2).

Drain the oil from the crankcase.



4. Fit:
- Drain plug (1).

Drain plug:
2,0 Kgf.m (20 N.m)

ENGINE

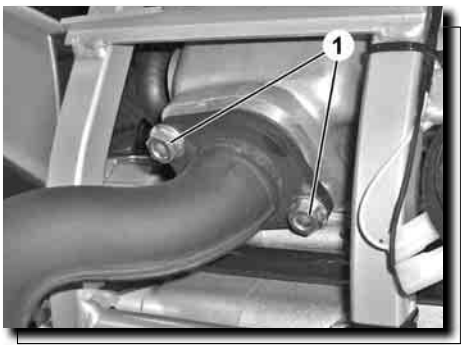
5. Replenish:
- Oil in the crankcase.

Quantity of oil:
0,8 L

6. Check:
- The engine oil level.

See "**INSPECT THE ENGINE OIL LEVEL**" section

INSPECTING THE EXHAUST SYSTEM



1. Inspect:
- Bolts (1) (exhaust pipe)

Loose/damaged => **Tighten/replace.**

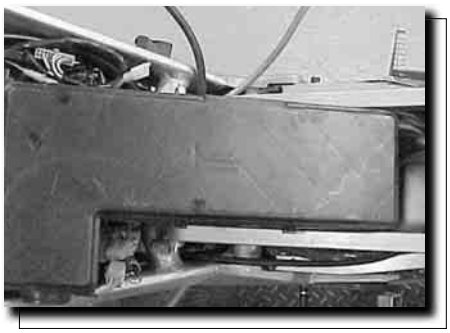
- Gasket (exhaust pipe).
Leaking exhaust fumes => **Tighten/replace.**

Bolt:
8 N.m (0,8 kgf.m)

2. Inspect:
Bolts securing the exhaust pipe to the chassis.
Loose/damaged => **Tighten/replace.**

Bolt:
17-19 N.m (1,7-1,9 kgf.m)

RENEWING AIR FILTER



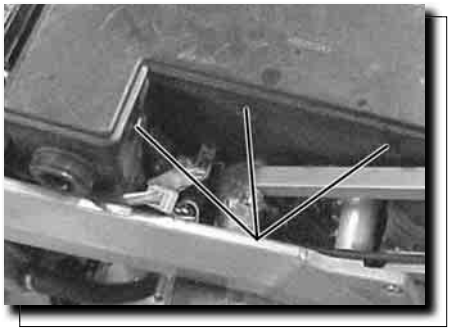
N.B.
IF THE MACHINE IS USED IN THE RAIN OR IN DUSTY CONDITIONS, THE FILTER SHOULD BE CHECKED AND REPLACED MORE FREQUENTLY THAN THAT SET OUT IN THE MAINTENANCE TABLE OR PROGRAMMED IN THE USE AND MAINTENANCE MANUAL.

Extract:
Proceed in the following way:

- Rest the machine on the prop stand. Remove the fuel tank (see previous sections).

ENGINE

- To remove the top cover, remove the clips securing the filter body (see picture).



- Extract the foam air filter, wash it in soapy water, then wring it out and dry it completely. Next, soak it in special oil for filters and refit it.

Fitting:
- Fit in reverse order to dismantling.

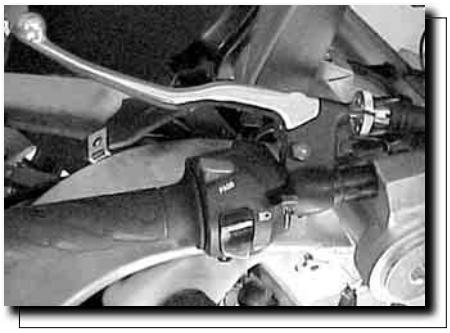
- Then refit the top filter cover.

- Seal the box cover with silicon.

Recommended oil:
AGIP FILTER OIL

WARNING
NEVER USE PETROL TO CLEAN THE AIR FILTER ELEMENT. A SOLVENT OF THIS TYPE MAY CAUSE FIRE OR EXPLOSION.

ADJUSTING THE CLUTCH

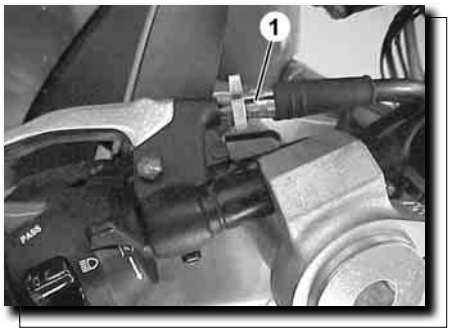


Check:
- Clutch cable play (a).

Outside that specified => **Adjust.**

Clearance (clutch lever):
10 – 15mm at the end of the lever.

2. Adjust:
- Clutch cable play.



Adjustment steps:
Lever end.

- Turn the adjuster (1) inwards or outwards until the specified play is obtained.

Turning inwards (a)= **Increases the play.**
Turning outwards (b) = **Reduces the play.**

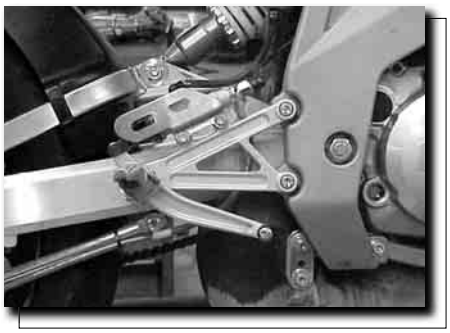
CHASSIS

ADJUSTING THE FRONT BRAKES

This machine is fitted with hydraulically activated disk brakes. This type of brakes comes with adjustment factory set.
You must check that the brake fluid level is between the maximum and minimum.

N.B.
REMEMBER THAT THE LEVEL WILL BE AFFECTED BY THE DEGREE OF BRAKE PAD WEAR.

ADJUSTING THE REAR BRAKES



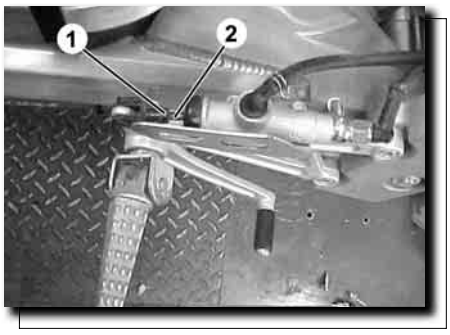
1. Check:
- Brake pedal clearance (a).

Outside that specified => **Adjust**.

Clearance:
5 - 10 mm

2. Adjust:
- Brake pedal clearance.

Adjustment steps:
Unscrew the nut (1):



Raise or lower the activator (2) to decrease or increase the lever free clearance.

ATTENTION
ENSURE THAT THE BRAKES ARE NOT BINDING AFTER ADJUSTING THE PLAY.

INSPECTING THE BRAKE PADS

1. Apply the brake pedal or lever.

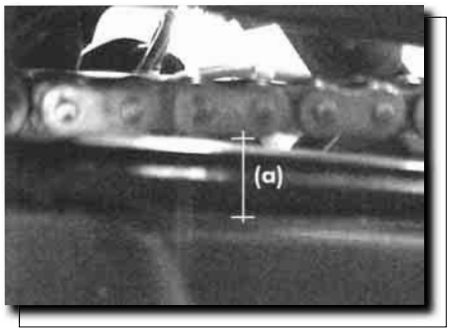
2. Inspect:
- Pads.

- Measure the brake pad lining thickness. If either of them is below the service limit => **Replace both pads.**

Service limit (lining) => 1.5mm.

CHASSIS

ADJUSTING THE TIMING CHAÍN TENSION

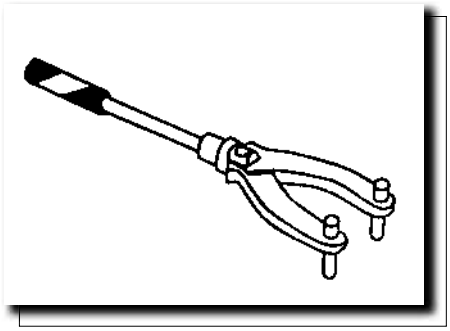


1. Put the motorcycle on the centre stand.

2. Check:
- Drive chaIn tension (a).

Outside that specified => **Adjust.**
(distance between the chain guide and the furthest point vertically)

Drive chain tension:
11 mm



3. Loosen:
- Axle nut (1) (both sides).

4. Loosen:
- Axle (2).

5. Adjust:
- Drive chain tension.

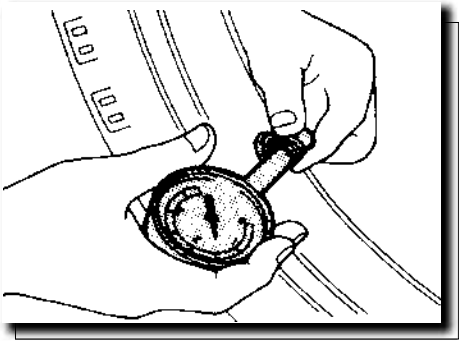
- Move the axle inwards or outwards using the bolt (3) until the specified tension is obtained.

6. Tighten the axle nuts to the nominal torque.

Nut (rear wheel axle):
70-80 N.m (7-8 kgf.m)

CHASSIS

INSPECTING THE TYRES



1.Measurement:
- Tyre pressure

Outside that specified => **Adjust.**

WARNING
TYRE PRESSURE SHOULD ONLY BE CHECKED OR ADJUSTED WHEN THEIR TEMPERATURE IS THE SAME AS AMBIENT TEMPERATURE. THE TYRES AND SUSPENSION SHOULD BE ADJUSTED IN ACCORDANCE WITH THE TOTAL LOAD – RIDER, PILLION PASSENGER AND ACCESSORIES (COVERS, SIDEBAGS, ETC. IF THESE ARE APPROVED FOR THIS MODEL) AND IN ACCORDANCE WITH THE RIDING SPEED OF THE MOTORCYCLE.

NEVER OVERLOAD THE MOTORCYCLE.

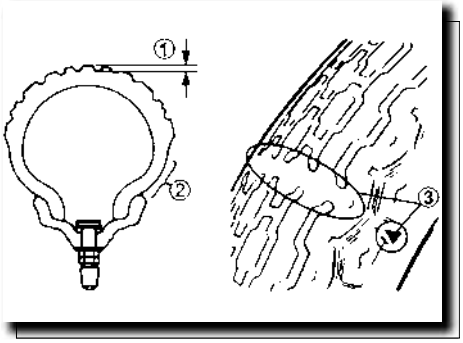
RIDING AN OVERLOADED MOTORCYCLE MAY CAUSE DAMAGE TO THE TYRES, ACCIDENTS OR INJURY.

BASIC WEIGHT: With oil and full fuel tank	131 kg

TYRE PRESSURES (COLD):	**FRONT TYRE**	**REAR TYRE**
Rider only	170 kPa 1,7 kg/cm2	190 kPa 1,9 kg/cm2
With pillion passenger	190 kPa 1,9 kg/cm2	210 kPa 2,1 kg/cm2

2. Inspect:
- Tyre surfaces.

Damage/wear => **Replace**.



Minimum tread depth:
0,8 mm

(1) Tread.
(2) Side wall.
(3) Wear indicator.

CHASSIS

WARNING
RIDING WITH WORN TYRES IS DANGEROUS. WHEN THE TYRE TREAD BEGINS TO SHOW SIGNS OF WEAR, THE TYRES SHOULD BE REPLACED IMMEDIATELY.

MENDING A PUNCTURED INNER TUBE IS NOT RECOMMENDED. IF IT IS ABSOLUTELY NECESSARY TO DO SO, TAKE GREAT CARE, AND REPLACE THE INNER TUBE WITH A GOOD QUALITY ONE AS SOON AS POSSIBLE.

NEVER USE TUBELESS TYRES ON A WHEEL DESIGNED FOR TYRES WITH INNER TUBES. THE TYRE MAY FAIL, AND THE RESULTING BLOW-OUT MAY CAUSE AN ACCIDENT.

Wheels for tubed tyres => **use only tubed tyres**.

Wheels for tubeless tyres => **use only tubeless tyres**.

- Ensure that the tube is correctly fitted when using tyres with inner tubes.

WARNING
AFTER FITTING THE TYRE, DRIVE WITH MODERATION FOR A PERIOD TO ALLOW PARAFFINS TO BE CLEANED OFF THE TYRE BY THE ROAD SURFACE.

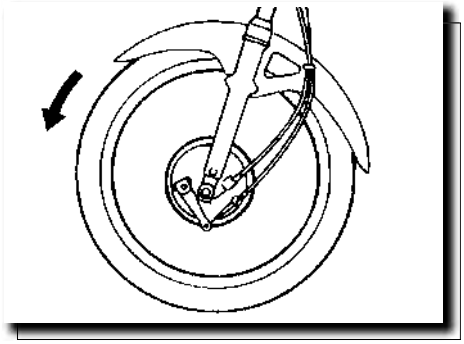
CHASSIS

INSPECTING AND TIGHTENING THE SPOKES

1. Inspect:
- Spokes (1).

Warps/damage => **Replace**.

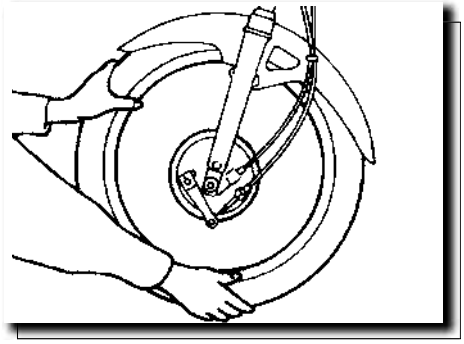
INSPECTING THE WHEELS



1. Inspect:
- Wheels

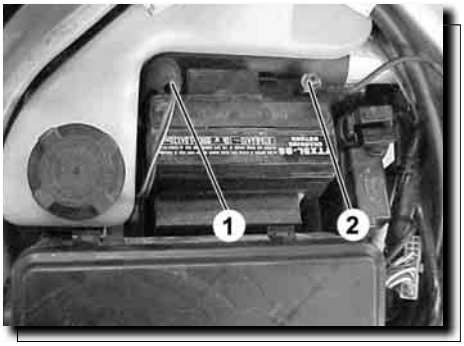
Damaged/distorted => **Replace**.

N.B.
ALWAYS CARRY OUT WHEEL BALANCING WHEN A TYRE OR A WHEEL IS FITTED OR REPLACED.



WARNING
NEVER ATTEMPT TO REPAIR A WHEEL.

INSPECTING THE BATTERY



1. Extract:
- Fuel tank.

See **"SEATS, FAIRING AND FUEL TANK"** section.

2. Inspect:
- Battery terminals.

Dirtiness => **Clean with wire brush**.
Poor connection => **Put right**.

ELECTRICAL SYSTEM

N.B.
AFTER CLEANING THE TERMINALS, APPLY A THIN LAYER OF GREASE TO THEM.

Replace the battery if:
- The voltage falls below a specific value.

ATTENTION
BEFORE USING THE NEW BATTERY, IT MUST BE CHARGED TO ENSURE MAXIMUM PERFORMANCE.

3. Fit:
- Battery.

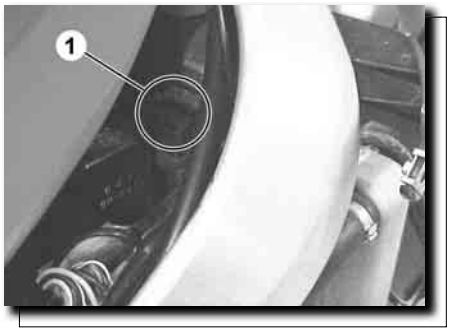
4. Connect:
- Battery cables.

ATTENTION
CONNECT THE POSITIVE CABLE (1) TO THE BATTERY FIRST AND THEN THE NEGATIVE CABLE (2).

5. Fit:
Fuel tank

See "**SEATS, FAIRING AND FUEL TANK**" section.

INSPECTING THE FUSES



ATTENTION
ALWAYS DISCONNECT THE MAIN SWITCH WHEN INSPECTING OR REPLACING A FUSE. FAILURE TO DO SO MAY RESULT IN A SHORT CIRCUIT.

1. Lift out and remove to the left
- fuel tank

See **"SEATS, FAIRING AND FUEL TANK"** section.

– Fuse box (1).

ELECTRICAL SYSTEM

2. Inspect:
- Fuse.

Steps for the inspection:
- Connect the multi-meter to the fuse to check if there is a circuit.

N.B.
ADJUST THE MULTI-METER SELECTOR TO Ω X.

If the meter indicates ∞ , replace the fuse.

3. Replacing:
- Blown fuse.

Replacement steps:
- Disconnect the main switch.

- Fit a new fuse with the correct amperage.

- Turn on the switches to check the functioning of the corresponding electrical devices.

- If the fuse blows again immediately, inspect the electrical circuit.

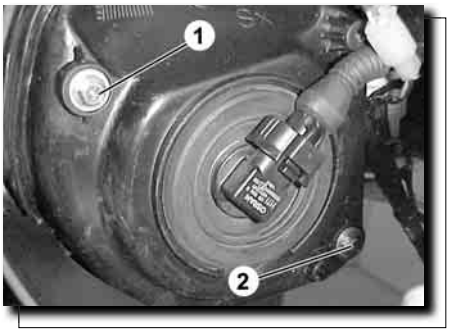
WARNING
NEVER USE A FUSE WITH AN AMPERAGE OTHER THAN THAT SPECIFIED. NEVER USE OTHER MATERIALS INSTEAD OF A FUSE. AN INCORRECT FUSE MAY CAUSE MAJOR DAMAGE TO THE ELECTRICAL SYSTEM, MALFUNCTIONING OF THE LIGHTS AND IGNITION, AND MAY ALSO CAUSE A FIRE.

4. Fit:
- Fuse box.
- Fuel tank

See **"SEATS, FAIRING AND FUEL TANK"** section.

ELECTRICAL SYSTEM

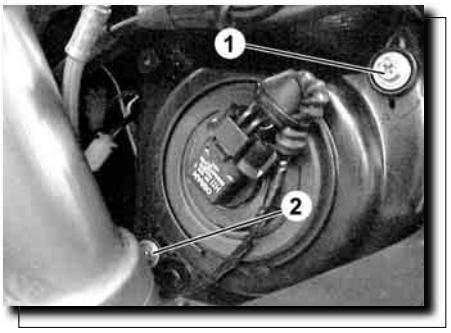
ADJUSTING THE HEADLIGHT BEAM



1. Adjustment

- Headlight beam height
To adjust the height, turn the screw (2) in one of two directions:

SCREWING IN => Lower
UNSCREWING => Raise



2. Adjust:

- Headlight dispersion.
To adjust the headlight width, turn the screw (1) in one of two directions:

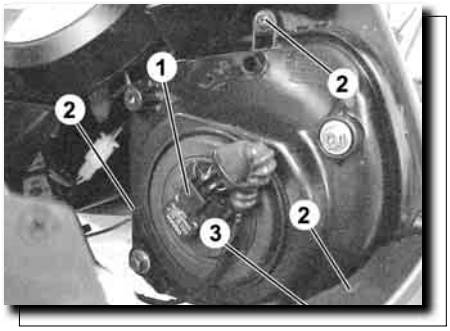
SCREWING IN => Increase
UNSCREWING => Decrease

REPLACING THE HEADLIGHT BULBS

1. Extraiga:
- Headlight bulb holder.

Disconnect the bulb holder, turn it a quarter turn (see photo) and pull it out.

Change the blown bulb and refit by repeating the process in the reverse order.



2. If the whole headlight unit needs to be changed, carry out the following process:
- Disconnect the bulb holder (1).

- Remove the screws (2) at the top, on the bottom inside and outside under the cover (3).

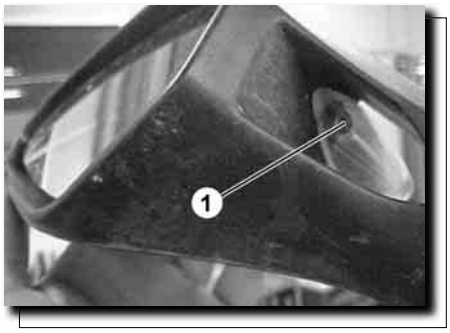
The headlight can now be removed though the inside of the front fairing.

ELECTRICAL SYSTEM

WARNING
KEEP INFLAMMABLE PRODUCTS AND HANDS AWAY FROM THE BULB WHILE IT IS LIT, BECAUSE IT WILL BE HOT. DO NOT TOUCH IT UNTIL IT COOLS DOWN.

ATTENTION
AVOID TOUCHING THE BULB GLASS. KEEP IT FREE OF OIL. IF NOT, THE TRANSPARENCY OF THE GLASS, THE DURABILITY OF THE BULB AND THE AMOUNT OF LIGHT EMITTED WILL BE AFFECTED. IF THE BULB BECOMES SOILED WITH OIL, CLEAN IT CAREFULLY WITH A DAMP CLOTH OR WITH ALCOHOL OR THINNER.

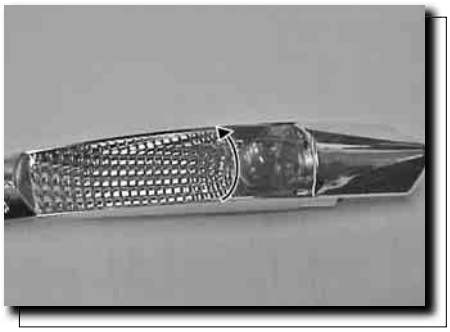
CHANGING TURN INDICATOR BULBS



1. Extract:
- Glass screw (1).

2. Dismantle:
- Glass cover.
- Power supply terminals

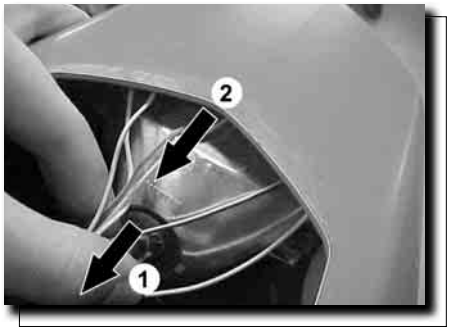
3. Turn the bulb carefully and pull out forwards.



4. Change the bulb (if necessary).

5. Reverse the dismantling process and refit the turn indicator.

CHANGING THE SIDE AND BRAKE LIGHT BULBS



1. Extract:
- Passenger seat.

2. To remove the BRAKE LIGHT, turn the bulb holder (1) in an anticlockwise direction and pull out.

3. To remove a SIDE LIGHT bulb, pull out the bulb holder (2).

INSPECTING THE ENGINE

4. Should the headlight need to be completely dismantled, the two screws (1) securing the unit to the cowling need to be removed, and the unit removed by pushing carefully through the rear of the cowling.

DISMANTLING THE ENGINE

N.B.:
THERE IS NO NEED TO REMOVE THE ENGINE TO DISMANTLE THE FOLLOWING COMPONENTS:
- CYLINDER HEAD
- CYLINDER
- PISTON
- MAGNETO FLYWHEEL

DISMANTLING THE SIDE COVERS AND FUEL TANK

4. Extract:
- FRONT covers
- Rider's seat.
- Fuel tank

See "**SEAT, SIDE COVERS AND FUEL TANK**" section in **CHAPTER 3**.

ENGINE OIL

1. Drain:
- Engine oil.

See the "**CHANGING ENGINE OIL**" section in **Chapter 3**.

BATTERY

1. Disconnect:
- Battery.

ATTENTION
FIRST DISCONNECT THE NEGATIVE CABLE (1) FROM THE BATTERY AND THEN THE POSITIVE CABLE (2).

DISMANTLING THE ENGINE

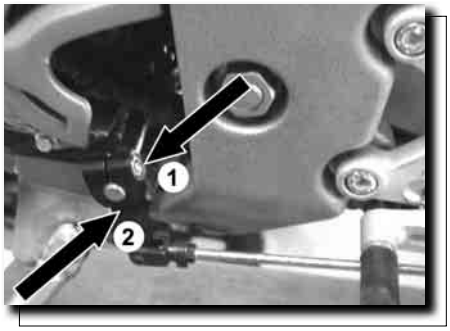
REMOVING THE ENGINE FROM THE CHASSIS

1. Dismantle side covers.

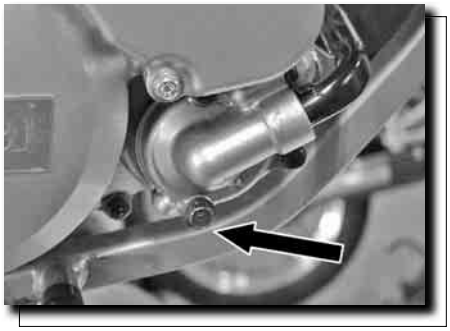
2. Remove the petrol tank.

3. Remove the exhaust pipe.

4. Remove the gear change lever.
- Remove bolt (1).
- Remove change backlash bush (2).



5.Remove chain.
Remove chain coupling link clip.



6. Extract the radiator.
Drain the cooling system.

7. Dismantling the carburettor.
- Remove filter box-carburettor pipe (secured with a jubilee clip).

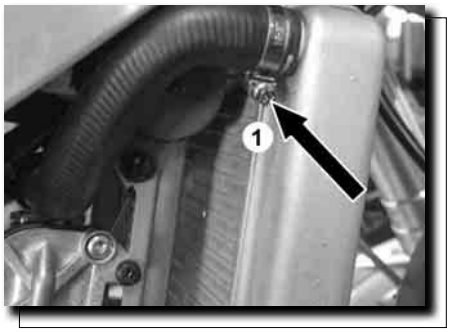
- Loosen jubilee clip on carburettor pipe to cylinder.

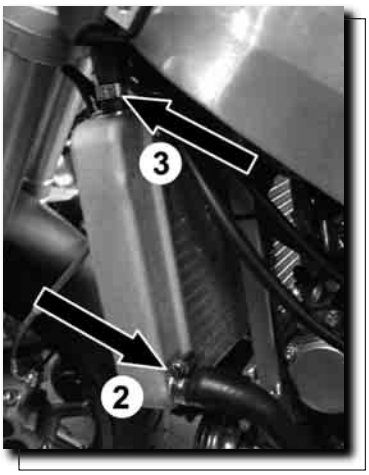
- Remove carburettor.

- Remove jubilee clip and pipe from cylinder head to carburettor.

DISMANTLING THE ENGINE

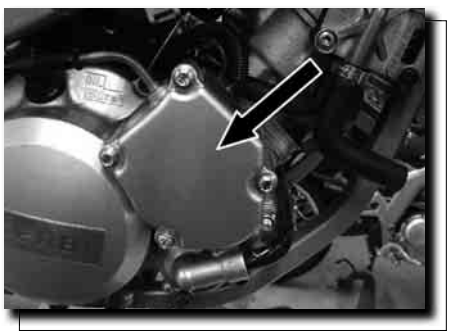
Remove system inlet (1) and outlet (2) hoses and tank hose (3).





Remove radiator.

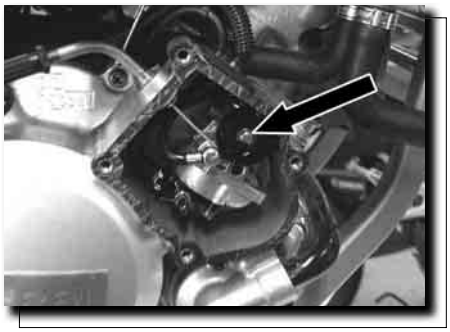
8. Extract oil pump cable.
Remove cover.



DISMANTLING THE ENGINE

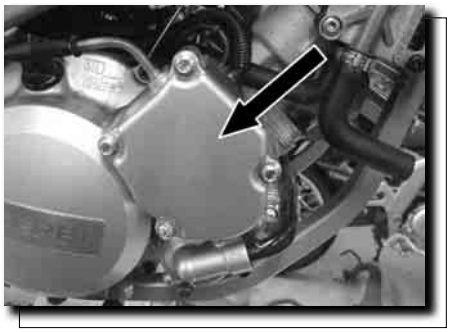
Remove the retaining circlip with pulley and torsion recovery spring.

- Extract cables and remove them from the engine.



9. Extract the oil tank to engine hose.
- Remove the tank hose and plug it.

- Plug the oil tank outlet.

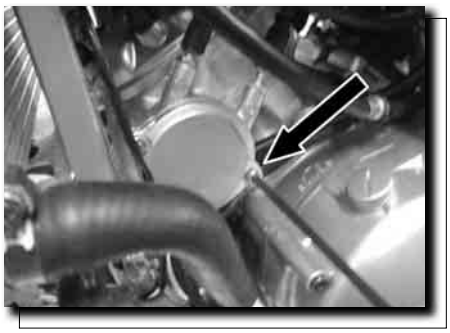


10. Remove the clutch operating cable.
- Free the clutch cable from the handlebars.
- Remove the the tensioning cable from the crankcase.
- Remove the clutch operating cable.

11. Free exhaust valve operating cable.
- Remove cover (1).

- Loosen cable by screwing in and extract it from the pulley.

- Unscrew the two tensioners and remove the cables.



12. Disconnect:
- Stator coil connector.
- Impulse coil connector.
- Neutral switch connector.

Extract:
- Spark plug connector.

DISMANTLING THE ENGINE

12. Remove electrical connections.
- Remove spark plug connector.
- Remove the temperature meter cable.
- Remove the magneto cable.
- Remove earth cable from right hand side of the crankcase.
- Remove neutral earth cable.
- Remove starter motor power supply cable.
- Remove cables from the coil.

13. Removing the engine cradle.
- Remove the UNEX clamps.
- Remove the 6 bolts securing the cradle to the engine and to the chassis.
- Withdraw the engine cradle from below the machine.

14. Extracting the engine.
Pull out the swinging arm axle without extracting it completely, ensuring that it only joins the swinging arm and the chassis. Insert a support shaft into the other side joining only the swinging arm and chassis, to ensure that the swinging arm and chassis do not come loose.

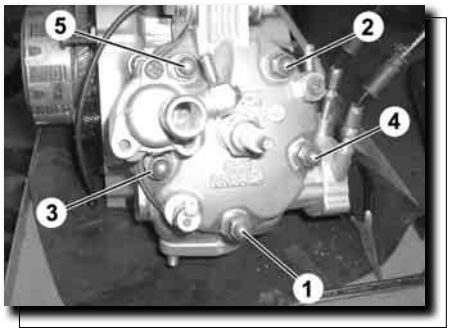
Unfasten the engine from the top bracket. Remove the engine.

N.B.
IT IS ADVISABLE TO PLACE A SUPPORT UNDER THE ENGINE BEFORE FREEING IT FROM THE CHASSIS, TO AID IN THE DISMANTLING PROCESS.

CYLINDER HEAD, CYLINDER AND PISTON

1. Extract:
- Nuts and washers (cylinder head).
- The cylinder head and its gasket on the cylinder.

N.B.
LOOSEN EACH OF THE 5 BOLTS A QUARTER TURN IN TURN, AND REMOVE THEM WHEN THEY ARE COMPLETELY LOOSE.
LOOSEN THE NUTS IN THE ORDER SHOWN IN THE ADJOINING PICTURE.
CLEAN OFF GASKET DEBRIS AND CARBON DEPOSITS WITHOUT SCRATCHING OR WEARING DOWN THE SURFACES.



2. Extract:
- Nuts and washers (cylinder base).
- Clutch cable securing device.
- Cylinder and its gasket.

DISMANTLING THE ENGINE

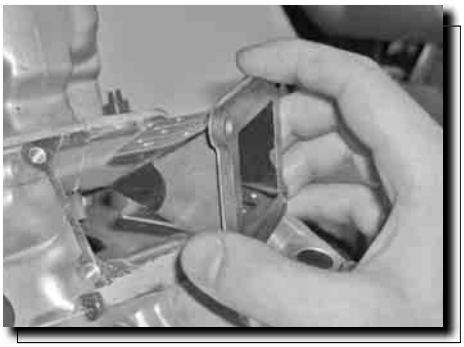
3. Extract:
- Gudgeon pin circlip.
- Gudgeon pin.
- Piston.
- Connecting rod big end needle bearing assembly.

N.B.
BEFORE REMOVING THE CIRCLIP FROM THE GUDGEON PIN, COVER THE BASE OF THE CYLINDER WITH A CLEAN CLOTH TO PREVENT ANYTHING FROM FALLING INTO THE ENGINE.

BEFORE REMOVING THE GUDGEON PIN, ELIMINATE THE ROUGH EDGES OF THE CICLIP GROOVE AND THE HOLE. ONCE THE ROUGH EDGING HAS BEEN ELMINATED, AND IF THERE IS STILL DIFFICULTY IN REMOVING THE GUDGEON PIN, USE THE GUDGEON PIN EXTRACTOR.

Gudgeon pin extractor:
00M12501258

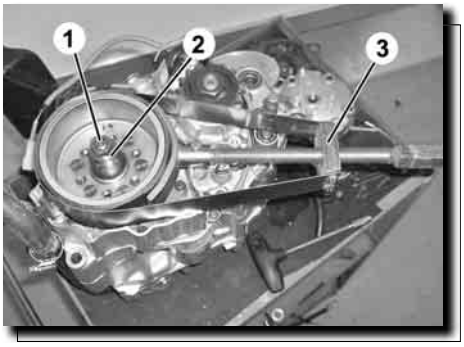
DISMANTLING THE REED VALVE



1. Extract:
- The carburettor from the engine unit.
- Closing bolts from the inlet nozzle.
- Reed valve.

MAGNETO

N.B.
THE MAGNETO CAN BE EXTRACTED WHILE THE ENGINE IS MOUNTED ON THE FRAME, BY DETACHING IT FROM THE LOWER LEFT HAND FAIRING



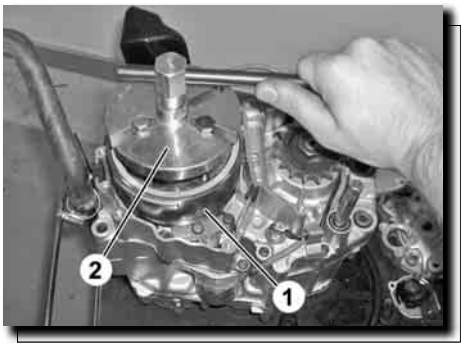
1. Extract:
- Left hand crankcase cover.
- Nut (magneto) (1).
- Flat washer (2).

N.B.
RELEASE THE MAGNETO NUT WHILE HOLDING THE MANETO WITH THE UNIVERSAL (MAGNETO) ROTOR HOLDER (3).

Holding the rotor:
00005253240

DISMANTLING THE ENGINE

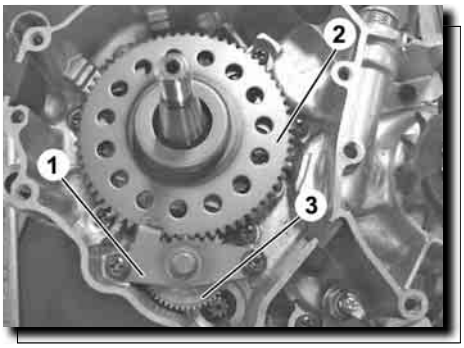
2. Extract:
- Magneto flywheel (1).
- Pin.



N.B.
EXTRACT THE MAGNETO FLYWHEEL USING THE ROTOR EXTRACTOR (2).
CENTRE THE ROTOR EXTRACTOR ON THE MAGNETO FLYWHEEL. ENSURE THAT THE GAP BETWEEN THE EXTRACTOR AND THE FLYWHEEL IS THE SAME AT ALL POINTS AFTER FITTING THE SECURING BOLTS. IF NECESSARY, LOOSEN ONE OF THE BOLTS TO ADJUST THE EXTRACTOR POSITION.

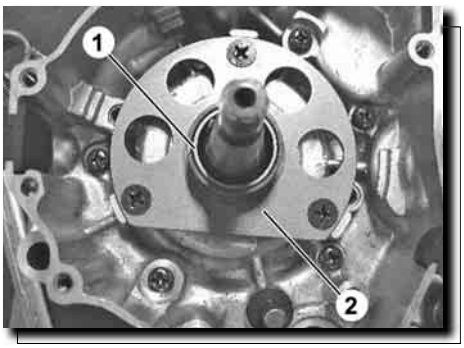
ATTENTION
COVER THE END OF THE CRANKSHAFT WITH THE SPANNER TO PREVENT DAMAGE.

Magneto flywheel extractor:
00M12501259



3. Extract:
- Plate (1).
- Starter gear (2).

4. Extract:
- Needle bearings (1).
- Support shaft (2).

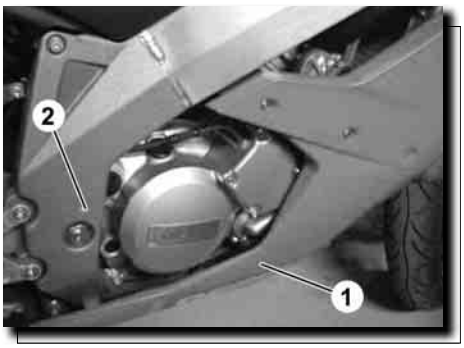


5. Extract:
- Nut
- Washer
- Drag pinion

CLUTCH

N.B.
THE CLUTCH ASSEMBLY CANNOT BE REMOVED WITH THE ENGINE MOUNTED ON THE FRAME. FOR THIS, SEE "REMOVING THE ENGINE FROM THE CHASSIS".

1. Extract:
- Right hand crankcase cover.



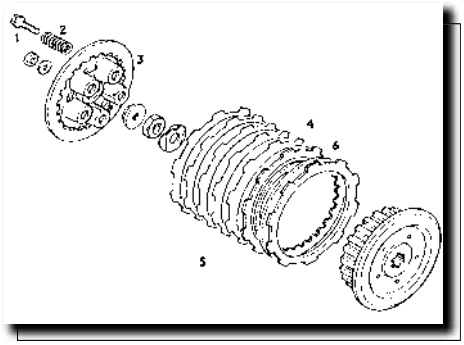
N.B.
LOOSEN THE BOLTS FOLLOWING A DIAGONAL SEQUENCE. DRAIN THE OIL FROM THE CLUTCH UNIT.

DISMANTLING THE ENGINE

2. Extract:
- Gasket.
- Guide pins.

3. Extract:
- Pressure plate bolts (1).
- Clutch springs (2).
- Pressure plate (3).
- Friction disks (4).
- Separators (5).
- Spring (6).

N.B.
LOOSEN THE PRESSURE PLATE BOLTS DIAGONALLY.



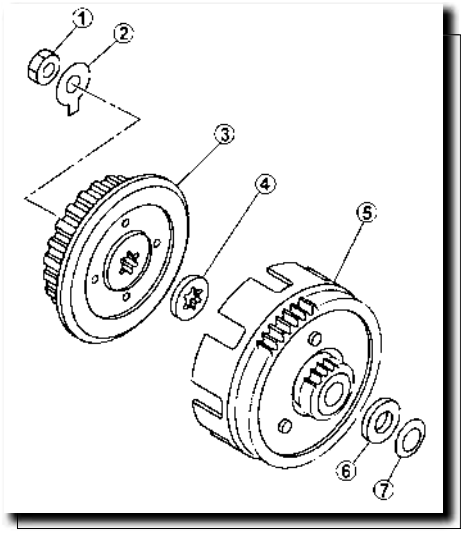
4. Extract:
- Push rod 1
- Ball
- Locknut

N.B.
FLATTEN OUT THE TAB OF THE TAB WASHER.
LOOSEN THE CLUTCH HOUSING NUT WHILE HOLDING THE HOUSING WITH THE UNIVERSAL CLUTCH HOLDER .

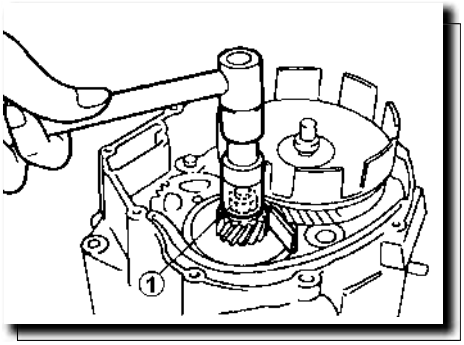
Universal clutch holder:
00M12501260

DISMANTLING THE ENGINE

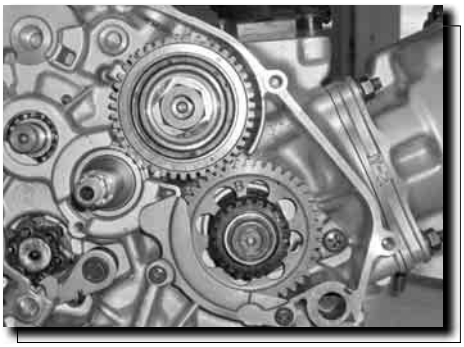
5. Extract:
- Clutch housing nut (1).
- Tab washer (2).
- Clutch housing (3).
- Pressure washer (4).
- Clutch bell casing (5).
- Spacer (6).
- Washer (7).



N.B.
HOLD THE MAGNETO FLYWHEEL USING THE ROTOR HOLDER. THEN LOOSEN THE ENGINE PINION NUT.



6. Extract:
- Nut.
- Special washer.
- Crankshaft output gear
- Pin.
- Crankshaft housing cover



7. Extract:
- Nut
- Tab washer
- Balancing (anti-vibration) gear.
- Pin.

DISMANTLING THE ENGINE

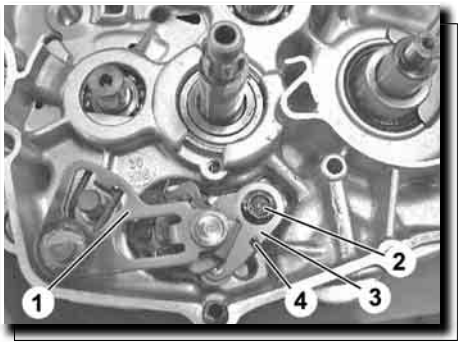
GEAR CHANGE SHAFT

N.B.
THE GEAR CHANGE SHAFT CANNOT BE DISMANTLED WITH THE ENGINE MOUNTED IN THE FRAME. SEE "REMOVING THE ENGINE FROM THE CHASSIS".

1. Extract:
- Gear change shaft (1).
- Bolt (2).
- Positioning cam (3)
- Torsion spring (4).

CRANKCASE

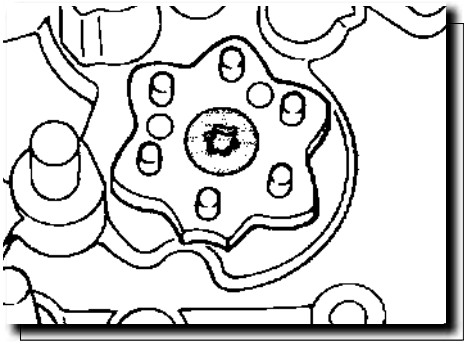
1. Extract:
- Bolts (crankcase).
- Battery cable bracket.



N.B.
UNDO THE BOLTS DIAGONALLY.

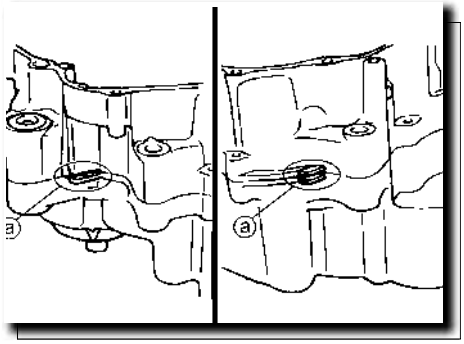
LOOSEN EACH BOLT A QUARTER TURN IN TURN, AND REMOVE THEM WHEN THEY ARE COMPLETELY LOOSE.

2. Position:
- The segment of the gear selector in such a way that it can pass through the hole and enable the crankcases to be separated.



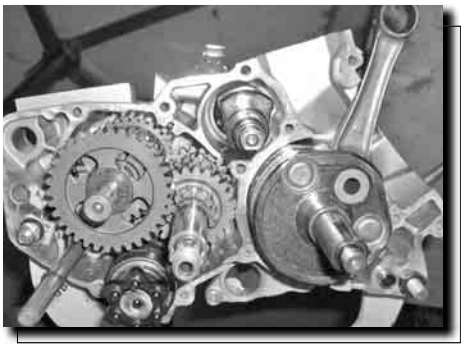
DISMANTLING THE ENGINE

3. Extract:
- Right crankcase



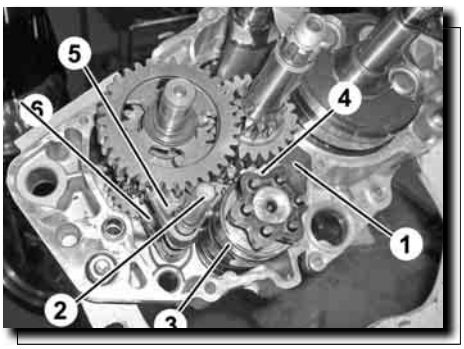
N.B.
PLACE THE ENGINE WITH THE LEFT HAND CRANKCASE FACING DOWN AND THEN INSERT A SCREWDRIVER IN THE CRANKSHAFT SEPARATING SLOTS (A).

4. Extract:
Guide pins.

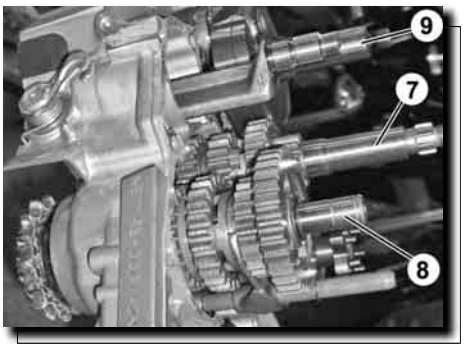


BALANCER, TRANSMISSION AND GEAR SELECTOR

1. Extract:
- Gear fork 1 guide lever (short).
- Gear fork 2 guide lever (long).
- Gear selector (3).
- Gear fork 1 (4).
- Gear fork 2 (5).
- Gear fork 3 (6).
- Drive shaft assembly (7).
- Driven shaft assembly (8).



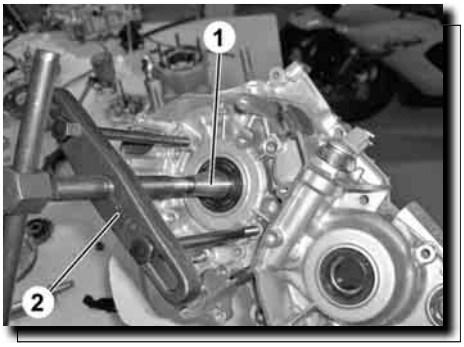
2. Extract:
- Balancing counterweight (9).



DISMANTLING THE ENGINE

3. Extract:
- Neutral switch.

CRANKSHAFT



1. Extract:
- Crankshaft with the rocker shaft.

N.B.
DETACH THE CRANKSHAFT USING THE CRANKCASE SEPARATOR TOOL (2).

TIGHTEN THE CRANKCASE SEPARATOR BOLTS RIGHT DOWN, BUT ENSURE THAT THE BODY OF THE TOOL IS PARALLEL WITH THE CASING. IF NECESSARY, LOOSEN ONE OF THE BOLTS A LITTLE TO ADJUST THE POSITION OF THE CRANKCASE SEPARATOR.

Crankcase separator:
00M12501261

CYLINDER HEAD

1. Eliminate:
- Carbon deposits sediments (and gasket remains).

N.B.
AVOID USING ANY SHARP EDGED INSTRUMENT THAT CAN CAUSE DAMAGE AND SCRATCHING:

- IN THE SPARK PLUG THREAD

2. Inspect:
- Cylinder head

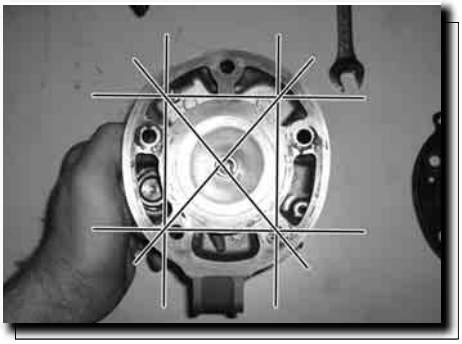
Scratches/damage => **Replace**.

INSPECTION AND REPAIR

3. Measurement:
- Distortion

Outside that specified => **Rectify**.

Cylinder head distortion:
less than 0.03mm



Steps for measuring the distortion and rectification:
- Place a ruler (1) and a thickness calliper (2) on the head cylinder surface, as in the figure to the side.

- Measure the distortion.

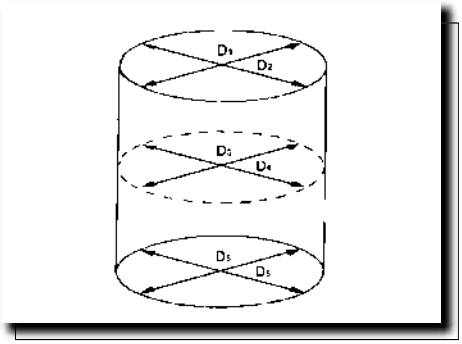
- If the distortion is outside that specified, rectify the cylinder head.

- The lines in the picture correspond to the different directions that need to be checked with the ruler.

- Lay a 400 – 600 file on a flat surface and rectify the cylinder head surface by filing with a figure eight movement.

N.B.
TURN THE CYLINDER HEAD SEVERAL TIMES TO AVOID AN EXCESSIVELY UNEVEN REMOVAL OF MATERIAL.

CYLINDER AND PISTON



1. Inspect:

- Cylinder and piston walls.

Vertical scratches=> **Rectify or replace the cylinder and the piston.**

2. Measurement:
- Cylinder-piston play

Steps for measuring:
Step 1:
- Measure cylinder diameter "C" with an internal calliper.

N.B.
MEASURE THE DIAMETER "C" OF THE CYLINDER ACROSS AND AT A RIGHT ANGLE TO THE CRANKSHAFT. THEN CALCULATE THE AVERAGE MEASUREMENT.

INSPECTION AND REPAIR

DIAMETER OF THE CYLINDER "C"	56.00 – 56.02 mm
TAPER LIMIT "T"	0.05 mm
OVALNESS "R"	0,01 mm

"C" = D MAXIMUM
"T" = (D1 O D2 MAXIMUM) - (D5 O D6 MAXIMUM)
"R" = (D1, D3 O D5 MAXIMUM) - (D2,D4 O D6 MINIMUM)

- If it is outside that specified , rectify or replace the cylinder and replace the piston and the rings together.

Step 2:
- Measure the base of the piston "P" with a micrometer. (a) 10 mm from the piston base.

	DIAMETER OF THE PISTON P.
STANDARD	55.950 – 59.955 mm

OVER-MEASUREMENT	0.25 mm
	0.50 mm

- If it is outside that specified , replace the piston and the rings together.

Step 3:
- Calcule el juego cilindro - pistón, empleando la siguiente fórmula:

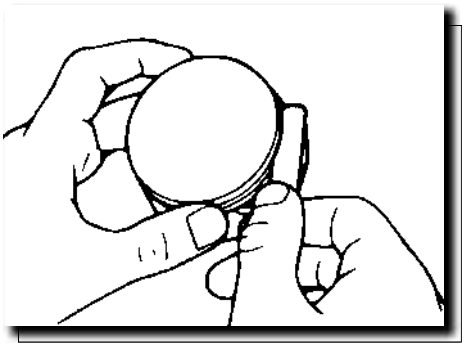
Cylinder-Piston clearance:
Diameter of the cylinder "C"
Diameter of the piston base "P".

Clearance (Cylinder-Piston):
0.045 – 0.050 mm
Limit: 0.10 mm

- If it is outside that specified, rectify or replace the cylinder, the piston and its rings all together.

INSPECTION AND REPAIR

INSPECTING THE PISTON RINGS



1. Measure:
- Lateral clearance.

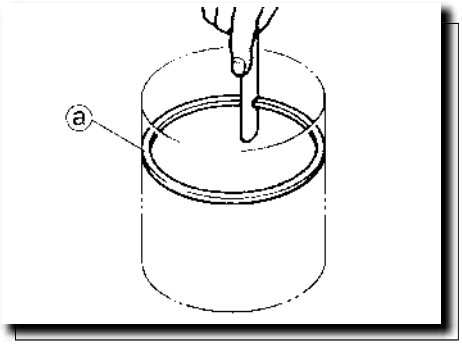
Outside that specified => **Replace the piston and its rings all together.**

N.B.
ELIMINATE THE CARBON DEPOSITS FROM THE PISTON RING GROOVES, BEFORE MEASURING THE LATERAL PLAY.

Lateral play (piston rings):

Top ring <Limit>:
0.02 – 0.06 mm

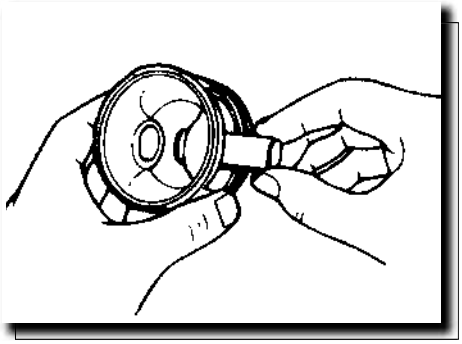
Secondary (scraper) ring:
<Limit>:
0.035 – 0.070 mm



2. Position:
- The piston rings (in the cylinder).

N.B.
PUSH THE RING WITH THE HEAD OF THE PISTON IN SUCH A WAY THAT IT IS POSITIONED PARALLEL TO THE CYLINDER BASE.

(a) 5mm.



3. Measure:
- Clearance between points

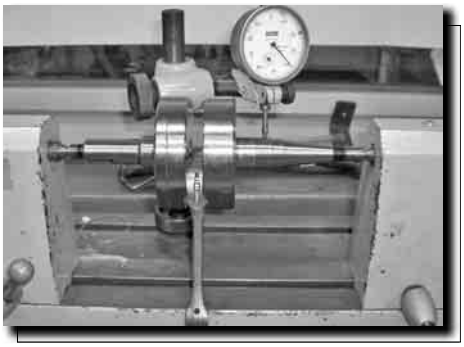
Outside that specified => Replace.

Clearance between points: Top ring <Limit>:
0.30 – 0.45 mm

Second ring (scraper) <Limit>:
0.30 – 0.45 mm

INSPECTION AND REPAIR

CRANKSHAFT



1. Measure:
- Crankshaft lack of alignment

Outside that specified => **Replace the crankshaft and/or bearings.**

N.B.
MEASURE CRANKSHAFT POOR ALIGNMENT BY SLOWLY TURNING THE CRANKSHAFT ASSEMBLY.

Poor alignment limit:
0,03 mm

2. Measure:
- Connecting rod side clearance

Outside that specified => Replace the connecting rod big end bearing, crankshaft elbow and/or the connecting rod.

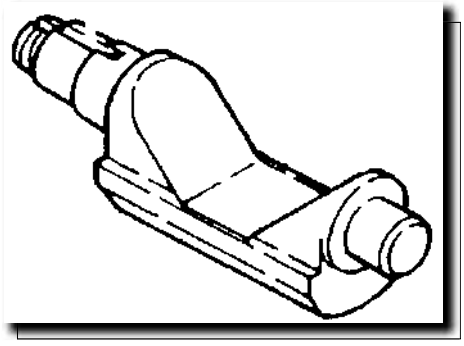
Connecting rod side clearance:
0.20 – 0.70 mm

3. Measure:
- Crankshaft width

Outside that specified => Replace the crankshaft.

Crankshaft width:
57.90 ÷ 57.95 mm

INSPECTING THE BALANCER

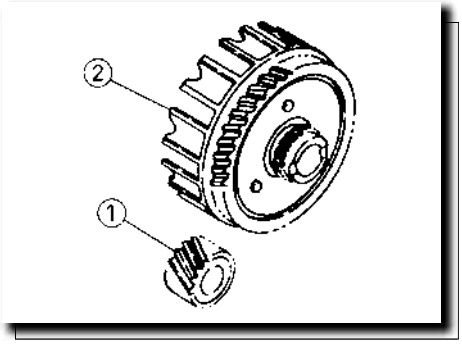


1. Inspect:
- Balancer shaft

Wear/warping/damage => **Replace**.

INSPECTION AND REPAIR

INSPECTING THE CLUTCH BELL HOUSING



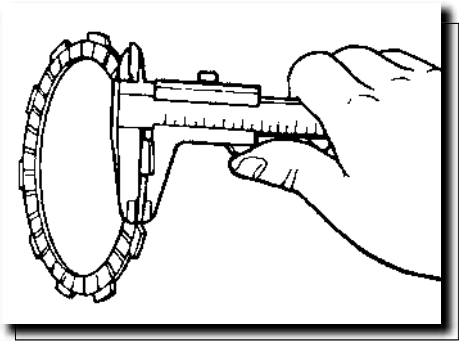
1. Inspect:
- Primary sprocket teeth (1).

- Bell housing sprocket teeth (2).

Wear/damage => **Replace both sprockets**.

Excessive noise when running => **Replace both sprockets**.

INSPECTING THE CLUTCH



1. Inspect:
- Friction disks

Wear/damage => **Replace the friction disk assembly**.

2. Measure:
- Thickness of the friction disks

Outside that specified => **Replace the friction disk assembly.**

Measure at 4 different positions.

Thickness (friction disks):
2.9 – 3.1 mm
<2.7 mm>

3. Inspect:
- Separators

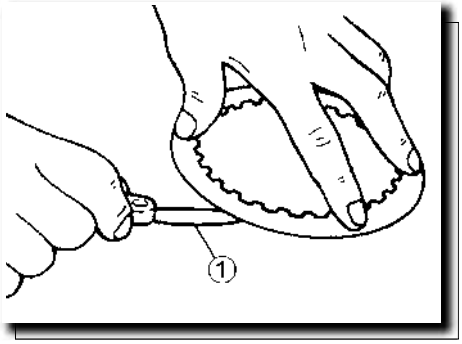
Damage => **Replace the separator assembly**.

INSPECTION AND REPAIR

4. Measure:
- Separator distortion

Outside that specified => **Replace the separator assembly**.

Take the measurement on a flat table with the aid of a thickness calliper (1).



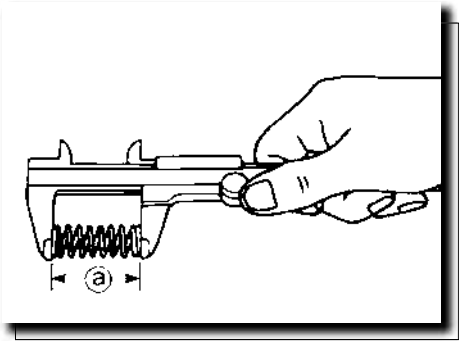
Distortion limit (separators):
less than 0,05mm.

5. Inspections:
- Clutch springs.

Damage => **Replace the spring assembly.**

6. Measure:
- Free length (springs) (a).

Outside that specified => **Replace the spring assembly.**



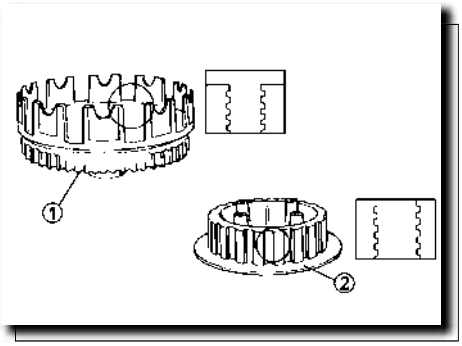
Free length (springs):
34.5 mm
<Limit:32 mm>

7. Inspect:
- Claws (of the bell housing) (1).

Edgings/wear/damage => **Eliminate the rough edges or replace the bell housing**.

- Clutch housing slots (2).

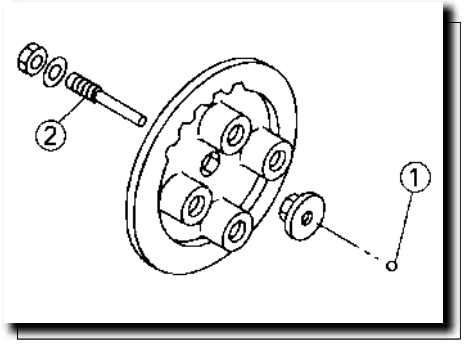
Rough edges/wear/damage => **Replace the clutch housing**.



N.B.
ROUGH EDGES ON THE CLUTCH CLAWS AND ON THE CLUTCH HOUSING SLOTS LEAD TO IRREGULAR OPERATION.

INSPECTION AND REPAIR

INSPECTING THE ACTIONING ROD

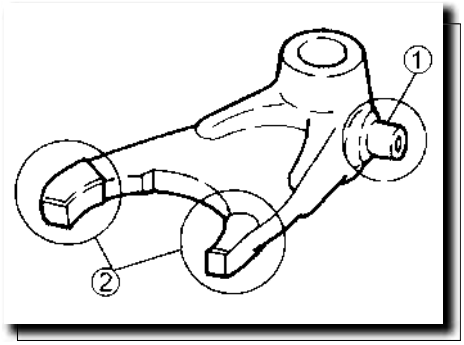


1. Inspect:
- Ball (1).

- Activating rod (2).

Wear/cracks/damage => **Replace.**

INSPECTION OF THE FORKS AND GEAR SELECTOR



1. Inspect:
- Fork follower (1).

- Ends of the gear change forks (2).

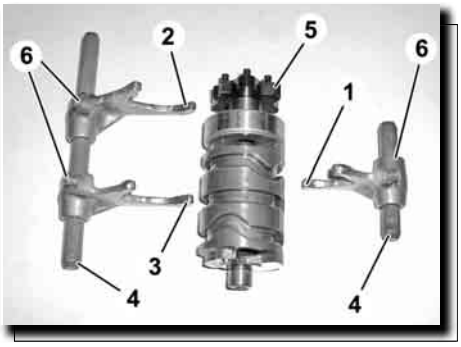
Scratches/warping/wear/damage => **Replace.**

2. Inspect:
- Gear selector slots.

Wear/damage/scratches => **Replace**.

- Gear change selector follower.

Wear/damage => **Replace**.



3. Inspect:
- Gear change fork 1 centre right (1).
- Gear change fork 2 top left (2).
- Gear change fork 3 bottom left (3).
- Guide bar (4).
- Gear selector (5).
- Guide pin (6).

Roll the guide bar on a flat surface. .

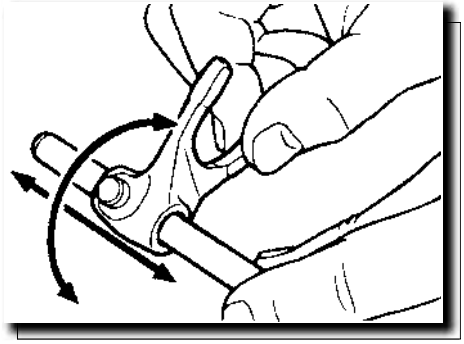
Warping => **Replace**

WARNING
DO NOT TRY AND STRAIGHTEN A WARPED BAR.

INSPECTION AND REPAIR

4. Check:
- Movement of the gear change forks (in the guide bar)

Irregular movement => **Replace the fork and the bar.**

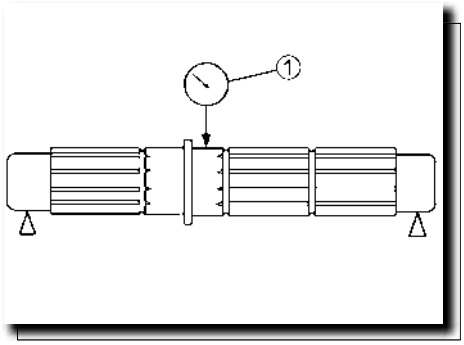


N.B.
IF THE GEAR CHANGE FORK AND THE TRANSMISSION SPROCKETS ARE FOUND TO BE DAMAGED, REPLACE THE SPROCKETS THAT ARE SIDE BY SIDE ALL TOGETHER.

5. Measure:
- Warping of the shafts (drive and driven)

Use a support between points and a dial gauge for linear measurement (1).

Outside that specified => **Replace the warped shaft.**

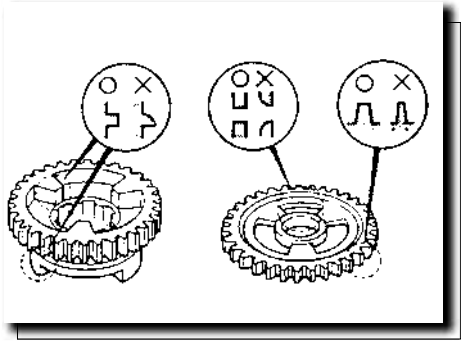


6. Inspect:
- Sprocket teeth

Blue colouring/grooves/wear => **Replace.**

- Sprocket claws

Rounded edges/cracks/pieces missing =>**Replace.**



7. Inspect:
- Gear change shaft (1).

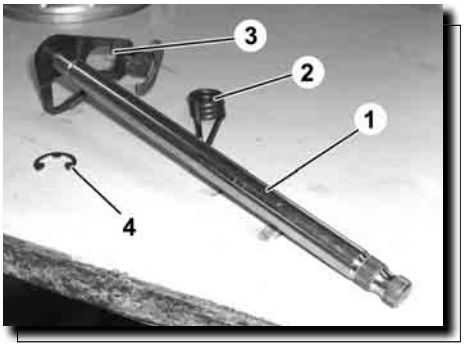
Damage/warping/wear => **Replace.**

- Return spring (gear change shaft) (2).

- Return spring (limiter rod) (3).

- Circlip (4).

Wear/damage => **Replace.**



INSPECTION AND REPAIR

CRANKCASES

1. Wash the casings well with petrol.

2. Clean well the seal-bearing surfaces and the casing contact surfaces.

3. Inspect:

- Crankcases

Cracks/damage => Replace

- Oil passages

Obstructions => Blow through the passages with compressed air.

BEARINGS AND RETAINING RINGS

1. Inspect:
- Bearings

Clean and lubricate, then turn the inner ring by hand.
Roughness => **Replace**

2. Inspect:
- Retaining rings
Damage/wear => **Replace**.

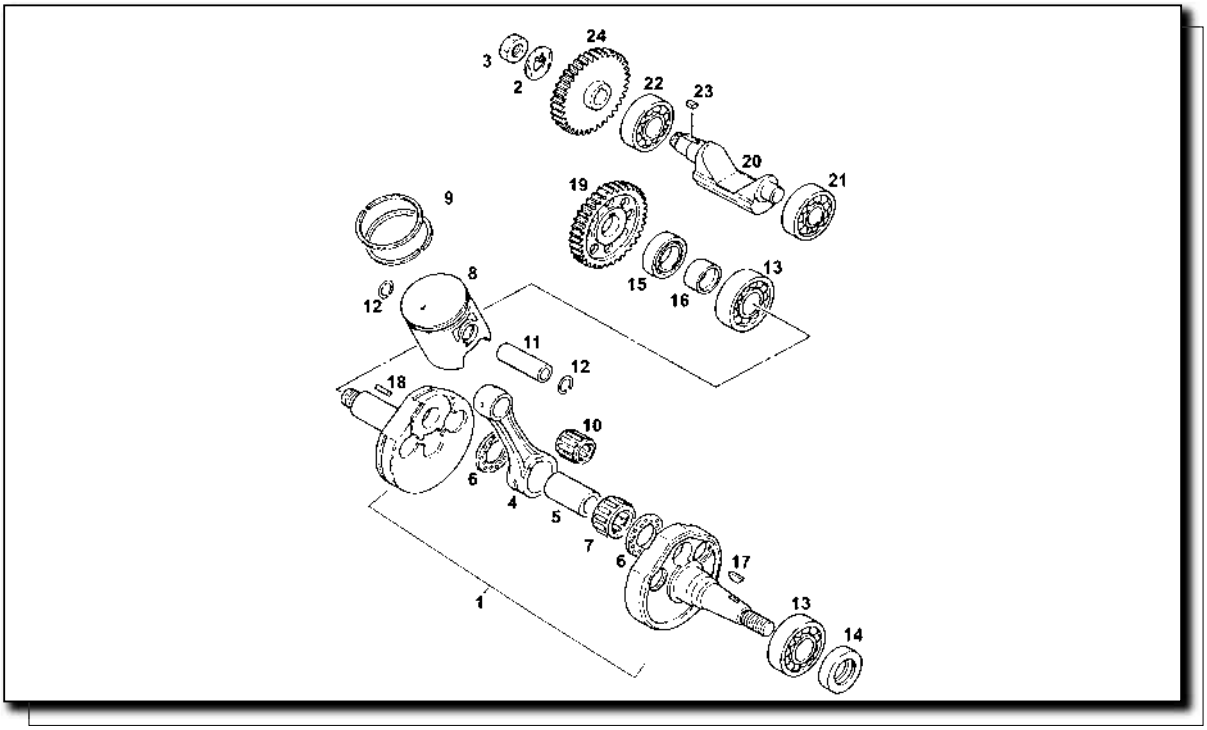
LOCKING RINGS AND WASHERS

1. Inspect:
- Locking rings
- Washers

Damaged/loose/distorted => **Replace**.

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

VALVES, ROCKERS AND CAMSHAFT



1	Complete crankshaft
2	Washer
3	Nut
4	Connecting rod
5	Pin
6	Washer
7	Roller bearing
8	Piston
9	Set of rings
10	Roller bearing
11	Gudgeon pin
12	Circlip
13	Bearing
14	Oil seal
15	Oil seal
16	Collar
17	Key
18	Straight key
19	Traction gear
20	Balancer (Counterweight)
21	Bearing
22	Bearing
23	Straight key
24	Balancer gear

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

CRANKSHAFT AND BALANCER SHAFT

1. Fit:
- Crankcase separator

Crankcase separator:
00M12501261

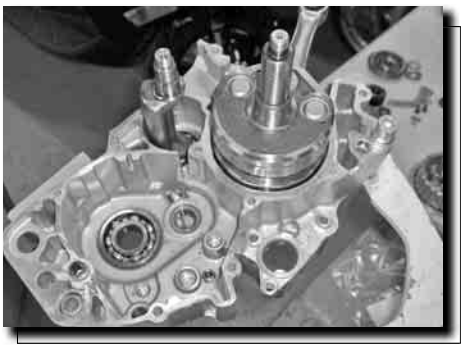
2. Fit:
- Crankshaft

N.B.
HOLD THE CONNECTING ROD WITH ONE HAND WHILE TURNIING THE NUT ON THE SPECIAL TOOL WITH THE OTHER HAND. USE THE TOOL UNTIL YOU FEEL THE CRANKSHAFT FIT INTO THE BEARING.

ATTENTION
TO PREVENT SCRATCHING TO THE CRANKSHAFT AND TO HELP ITS FITTING, APPLY GREASE TO OIL SEAL EDGES AND ENGINE OIL TO THE BEARINGS.

3. Fit:
- Rocker shaft.

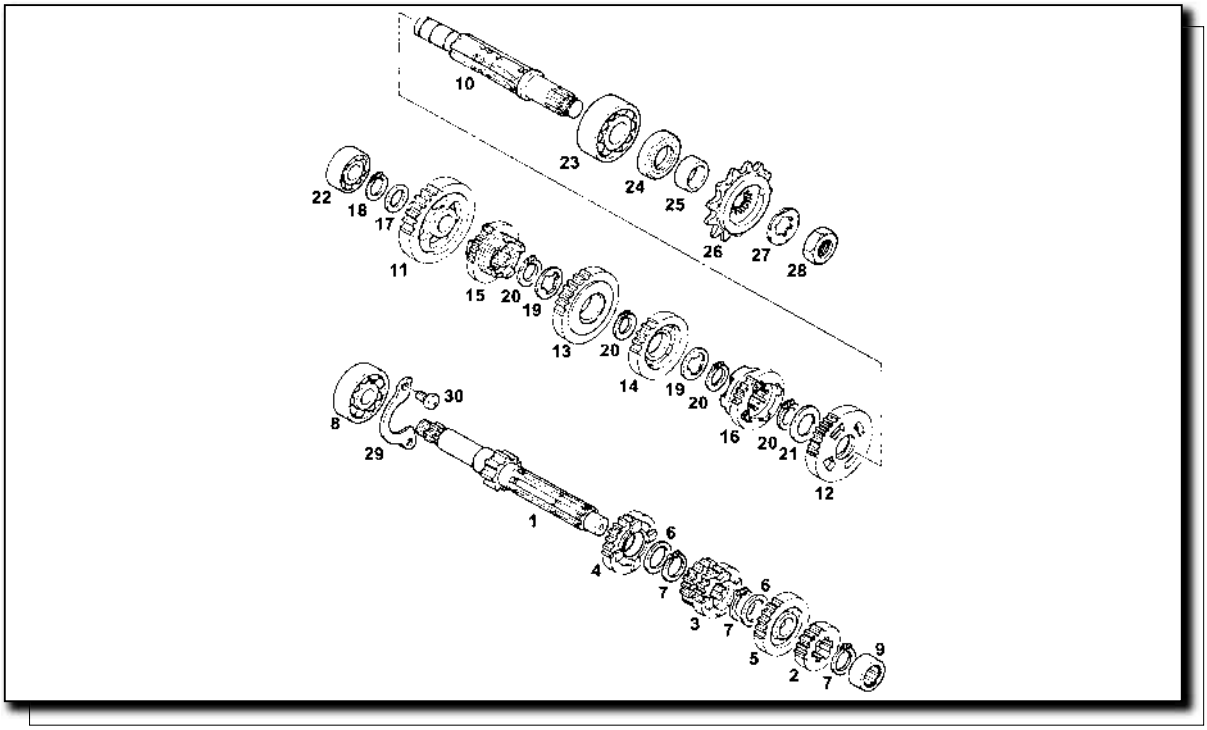
Always use new rubber rings.



4. Fit:
- Neutral switch

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

TRANSMISSION

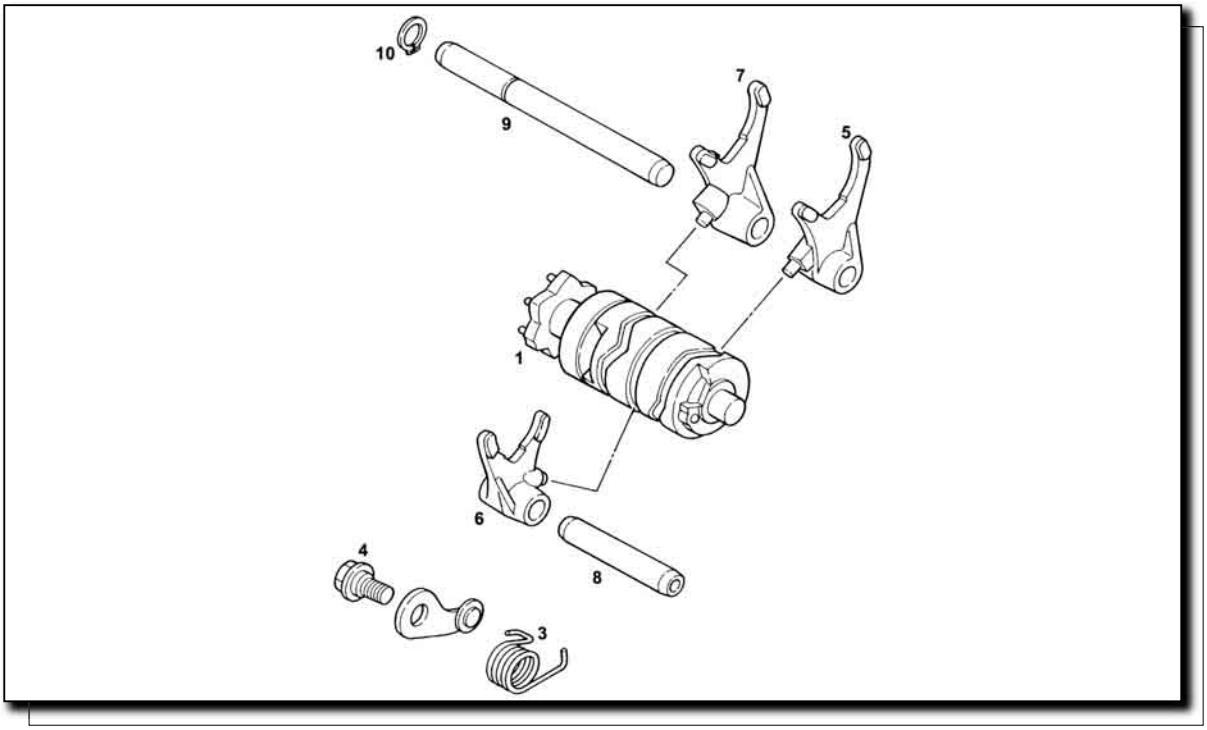


1	Primary shaft
2	2nd gear pinion
3	3rd gear pinion
4	5th gear pinion
5	6th gear pinion
6	Washer
7	Circlip
8	Bearing
9	Roller bearing
10	Secondary shaft
11	1st gear cogwheel
12	2nd gear cogwheel
13	3rd gear cogwheel
14	4th gear cogwheel
15	5th gear cogwheel
16	6th gear cogwheel
17	Flat washer
18	Round spring clip
19	Washer
20	Circlip
21	Washer
22	Bearing
23	Bearing
24	Oil seal

25	Collar
26	Ring gear
27	Washer
28	Nut
29	Plate
30	Bolt

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

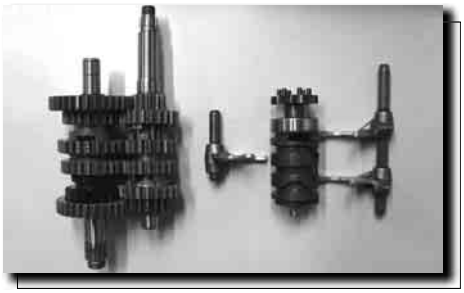
GEAR SELECTOR



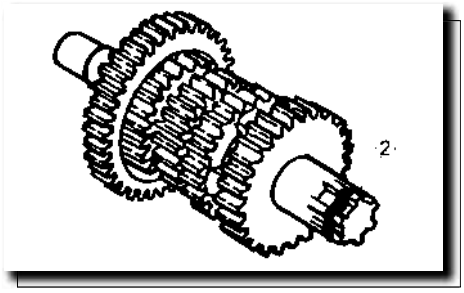
1	Selector drum
2	Stop lever
3	Spring
4	Stud
5	Gear change fork 1
6	Gear change fork 2
7	Gear change fork 3
8	Gear change fork 1 guide lever
9	Gear change fork 2 guide lever
10	Round spring clip

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

1. Fit:
- Primary and secondary transmission shafts (driving and driven).
- Bottom left gear change fork (1).
- Centre right gear change fork (2).
- Top left gear change fork (3).
- Guide bar (1) (short) (4).
- Guide bar (2) (long) (5).



N.B.
FIT THE GEAR CHANGE FORKS WITH THE ENGRAVED MARK UPWARDS AND IN ORDER (1,2,3,)



6. Check:
- Gear selector operation

Irregular operation => **Adjust**.

N.B.
CHECK THAT TRANSMISSION AND FORK OPERATION IS NORMAL BY TURNING THE GEAR CHANGE SELECTOR BY HAND.

CRANKCASE (LEFT HAND SIDE)

1. Apply:
- Adhesive
(to the crankcase contact surfaces).

N.B.
DO NOT ALLOW SILICON TO COME INTO CONTACT WITH THE OIL PASSAGES.

2. Fit:
- Guide pins.

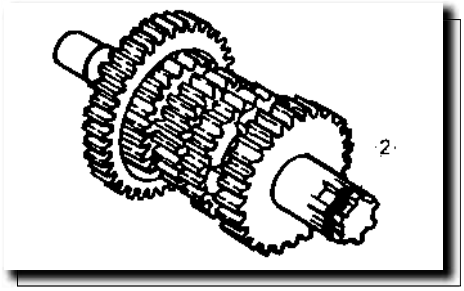
3. Fit:
- Crankcase (right) (onto left crankcase).

N.B.
TAP THE CRANKCASE COVER LIGHTLY WITH A PLASTIC HAMMER.

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

4. Tighten:
- Bolts (crankcase cover)

Bolts (casing):
1,0 Kgf.m (10 N.m)



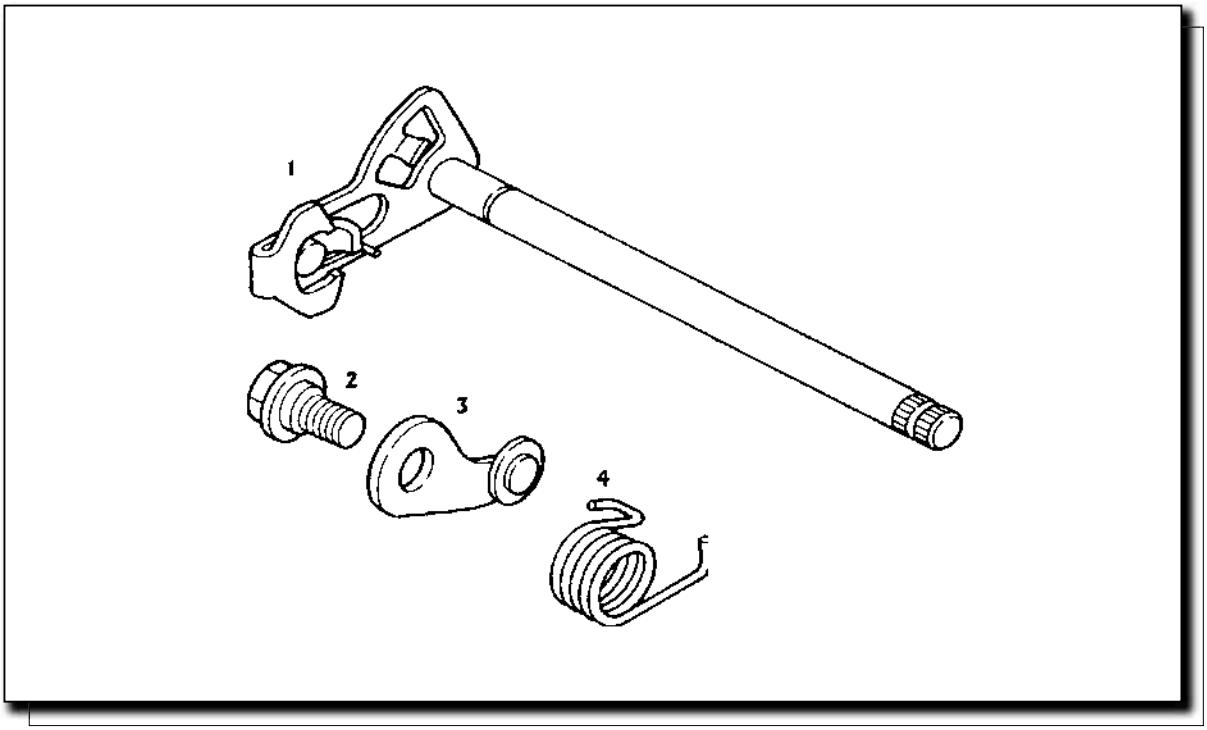
5. Apply:
- 2-stroke engine oil.
(to the crankshaft elbow joints, bearings, oil feed holes).

6. Check:
- Operation of the crankshaft and transmission.

Irregular operation => **Repair.**

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

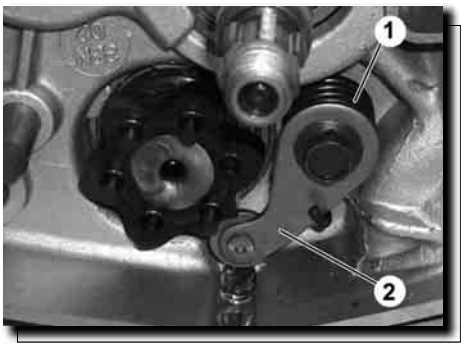
GEAR CHANGE SHAFT



1	Complete selector shaft
2	Bolt
3	Stop cam
4	Torsion spring

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

1. Fit:
- Torsion spring (1).
- Positioning cam (2)
- Bolt

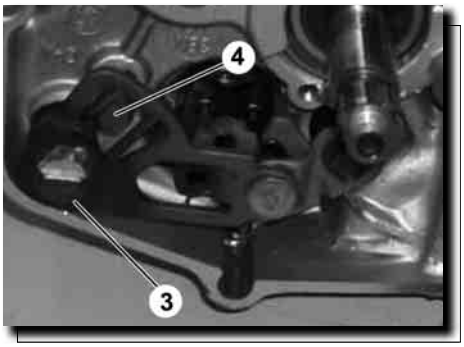


N.B.
SECURE THE SPRING TO THE STOP CAM AND ENSURE THE LATTER IS IN THE CORRECT POSITION,
THEN TIGHTEN THE SECURING BOLT TO THE SPECIFIED TORQUE.

Bolt (limiter rod):
14 N.m (1.4 kgf.m)

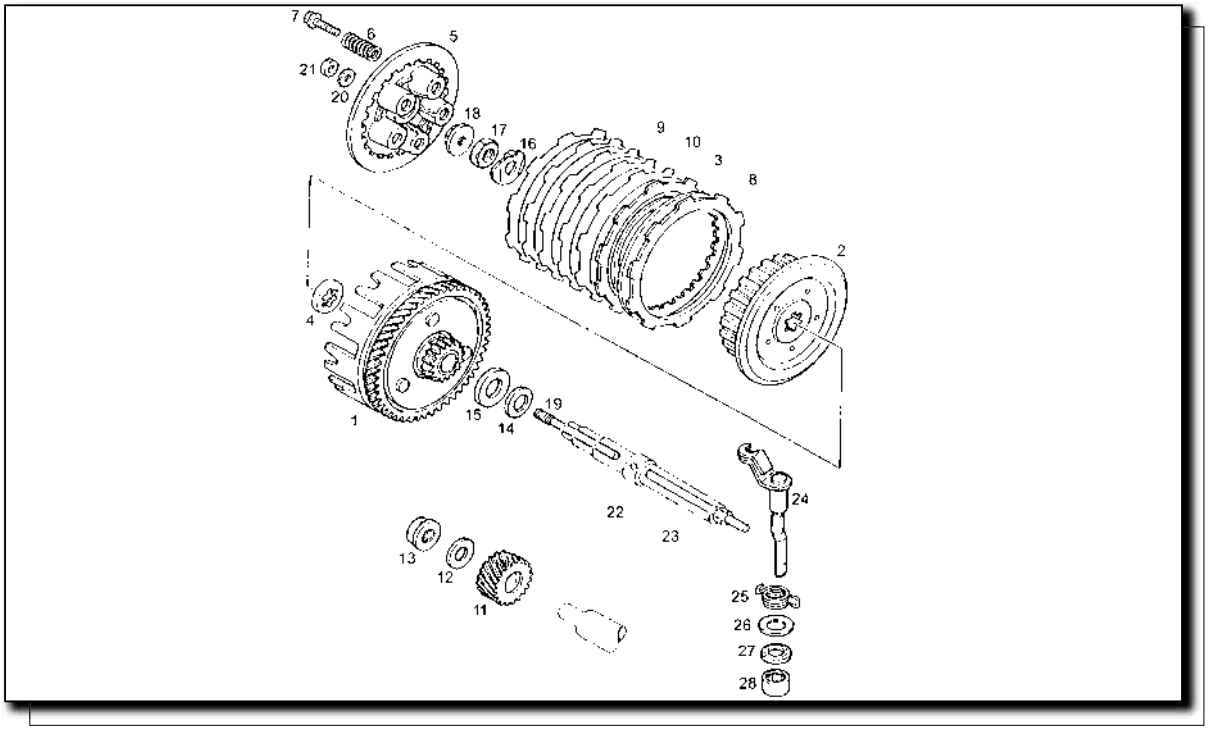
2. Fit:
- Gear change shaft assembly (3).

N.B.
APPLY GREASE TO THE RETAINING RING PINS FIT THE ENDS OF THE SPRING INTO THE LIMITER (4).



REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

CLUTCH AND CLUTCH BELL HOUSING

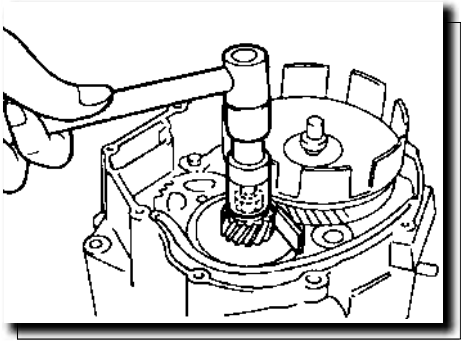


1	Clutch bell housing
2	Clutch housing
3	Clutch plate
4	Washer
5	Pressure plate
6	Spring
7	Bolt with washer
8	Friction disk
9	Friction disk
10	Spring
11	Primary traction gear
12	Washer
13	Nut
14	Washer
15	Flat washer
16	Washer
17	Nut
18	Separator
19	Push rod 1
20	Washer
21	Nut
22	Sphere
23	Push rod 2
24	Complete push cam

25	Spring
26	Flat washer
27	Oil seal
28	Roller bearing

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

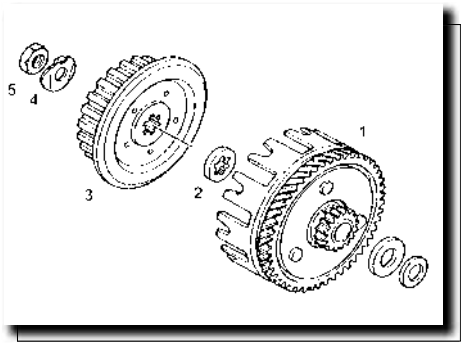
INSTALLING THE CLUTCH BELL HOUSING



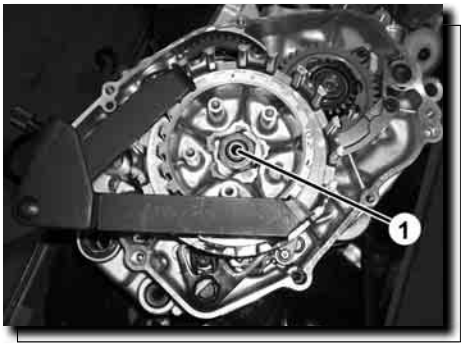
1. Fit:
- Balancing gear
- Primary gear
- Clutch bell housing

N.B.
TAKE CARE TO FIT THE BALANCING GEAR AND THE PRIMARY GEAR WITH THE CENTRING MARKS LINED UP.

FITTING THE CLUTCH



1. Fit:
- Clutch bell casing (1).
- Pressure washer (2).
- Clutch housing (3).
- Tab washer (4).
- Clutch housing nut (5).



2. Tighten:
- Clutch housing nut.

N.B.
TIGHTEN THE CLUTCH HOUSING NUT WHILE HOLDING THE HOUSING WITH THE UNIVERSAL CLUTCH HOLDER .

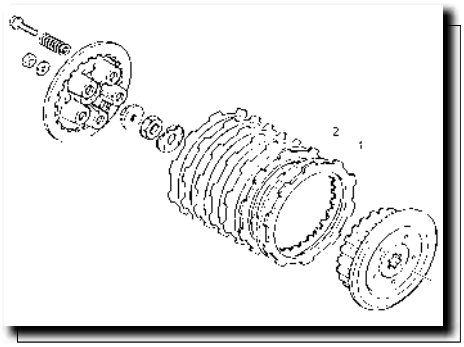
Clutch holder:
00M12501260

Clutch housing nut:
70 N.m (7.0 kgf.m)

3. Fold:
- Edge of tab washer (1).
(upwards onto a flat side of the nut)

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

4. Fit:
- Friction disks (1).
- Separators (2).



N.B.
- FIT THE DISKS AND SEPARATORS ALTERNATELY INTO THE CLUTCH ASSEMBLY, STARTING WITH A FRICTION DISK AND

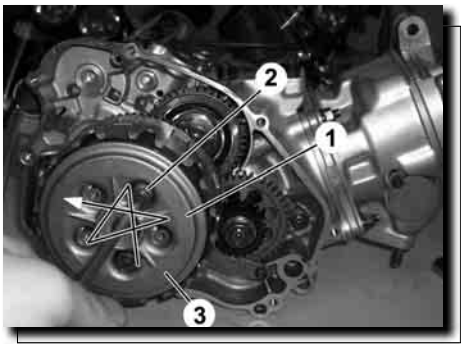
ENDING WITH A FRICTION DISK AS WELL.

- LUBRICATE ALL THE DISKS AND SEPARATORS WITH ENGINE OIL BEFORE FITTING.

- BE SURE TO FIT EACH SEPARATOR WITH ITS PROJECTIONS TURNED AT 90° TO THE PREVIOUS ONE. CONTINUE WITH THIS PROCEDURE IN A CLOCKWISE DIRECTION UNTIL ALL THE SEPARATORS HAVE BEEN INSTALLED.

5. Fit:
- Activating rod.
- Ball.

6. Fit:
- Pressure plate (1).
- Compression springs (2).
- Bolts (3).



Bolts (clutch spring):
0,6 Kgf.m (6 N.m)

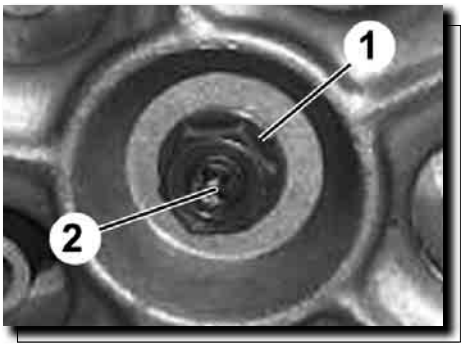
N.B.
TIGHTEN THE SPRING BOLTS GRADUALLY AND IN A DIAGONAL FASHION.

7. Check:
- Position of the activating plate.

Push the lever assembly in the direction of the arrow and ensure that the alignment marks line up.

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

9. Adjust:
- Position of the activating plate.



Adjustment steps:
- Loosen lock nut (1).

- Turn the adjuster (2) clockwise or anticlockwise to line up the marks.

- Hold the adjuster to stop it from moving and tighten the locknut.

ATTENTION
BE CAREFUL NOT TO OVERTIGHTEN THE ADJUSTER (2) AND ELIMINATE THE CLEARANCE BETWEEN THE TWO ACTIVATING RODS.

- Tighten the lock nut (1).

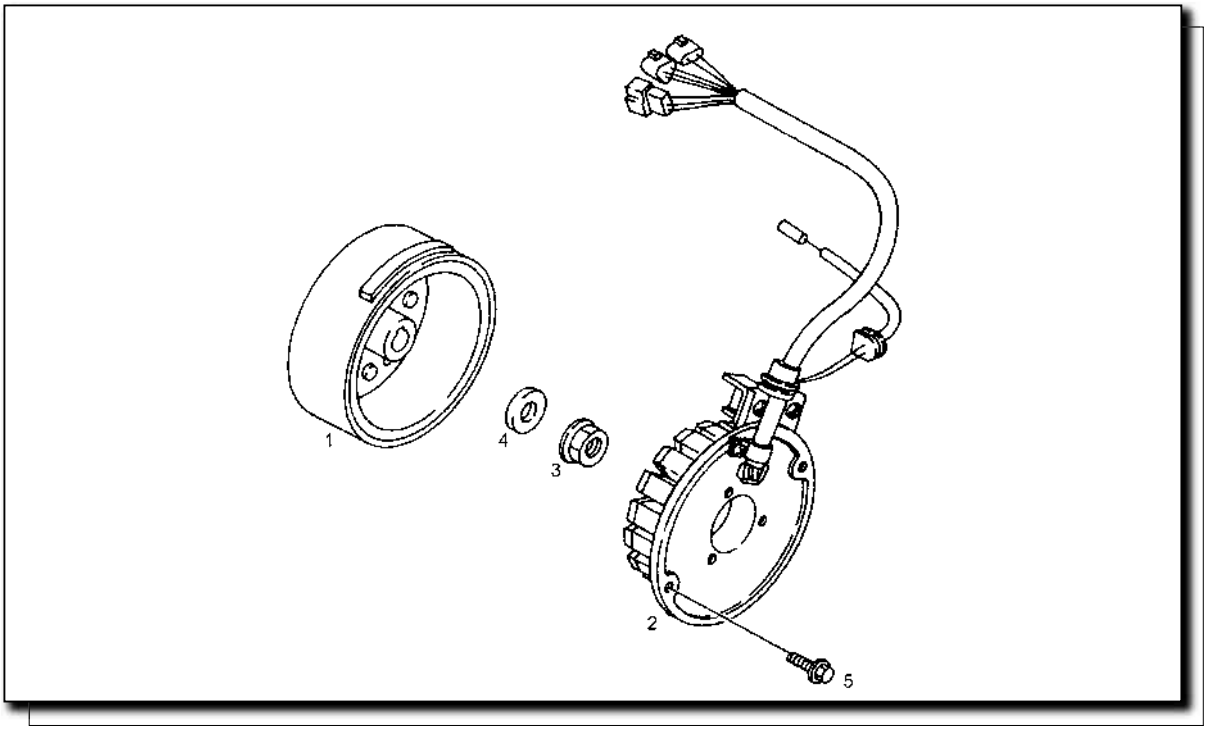
Lock nut:
10 N.m (1kgf.m)

10. Fit:
- Guide pins.
- Crankcase gasket
- Right hand crankcase cover

Crankcase cover bolts:
8 N.m (8kgf.m)

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

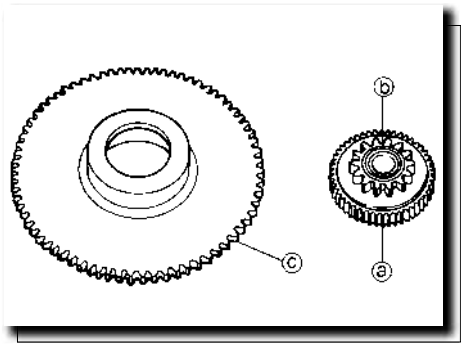
MAGNETO AND STARTER SYSTEMS



1	Magneto flywheel support
2	Bolt
3	Starter wheel
4	Roller bearing
5	Intermediate starter gear shaft
6	Flat washer
7	Intermediate starter gear
8	Intermediate starter gear plate
9	Bolt
10	Starter clutch
11	Starter clutch spring cover
12	Pin
13	Spring
14	Bolt
15	Magneto
16	Stator
17	Nut
18	Flat washer
19	Bolt

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

INSPECTING THE STARTER GEAR



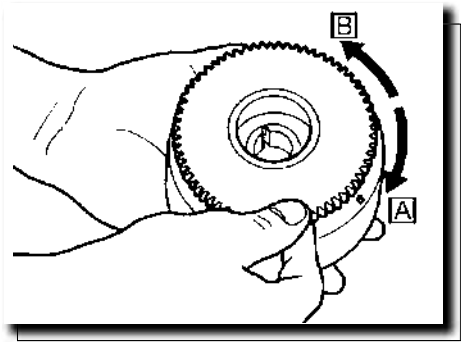
1. Inspect:
- Starter system gear teeth (a) (b) (c).

Rough edges/swarfing/roughness/wear => **Replace.**

2. Check:
- Operation of the starter clutch.

Push the guide pins in the direction of the arrow.

Non-smooth functioning => **Replace.**



Checking steps:
- Hold the starter clutch.

- On turning the (big) starter gear clockwise (A), the starter clutch and the starter gear should be coupled.

- If not, the starter clutch is damaged.
Replace.

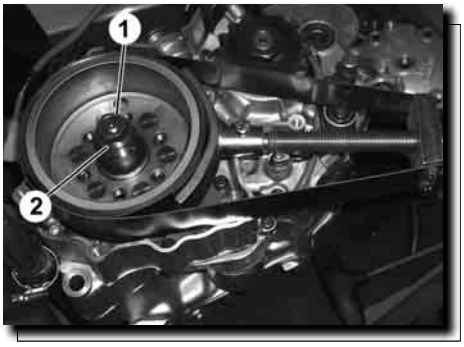
- On turning the starter gear in an anticlockwise direction (b), it should turn freely.

- If not, the starter clutch is damaged.
Replace.

MAGNETO AND STARTER GEAR

1. Fit:
- Intermediate starter gear
- Securing plate

2. Apply:
- 2-stroke engine oil. (to the starter gears).



3. Fit:
- Starter clutch support plate
- Roller bearing
- Starter gear.

4. Fit:
- Key.
- Magneto rotor.

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

N.B.
FIT THE ROTOR PROVISIONALLY, ALIGNING THE KEYWAY WITH THE KEY. TURN THE STARTER GEAR CLOCKWISE AND FIT THE ROTOR ONTO THE STARTER GEAR.

5. Tighten:
- Nut (magneto flywheel).

Magneto flywheel nut:
80 N.m (8kgf.m)

N.B.
TIGHTEN THE NUT (1) WHILE HOLDING THE FLYWHEEL (2) WITH THE ROTOR HOLDER (3).

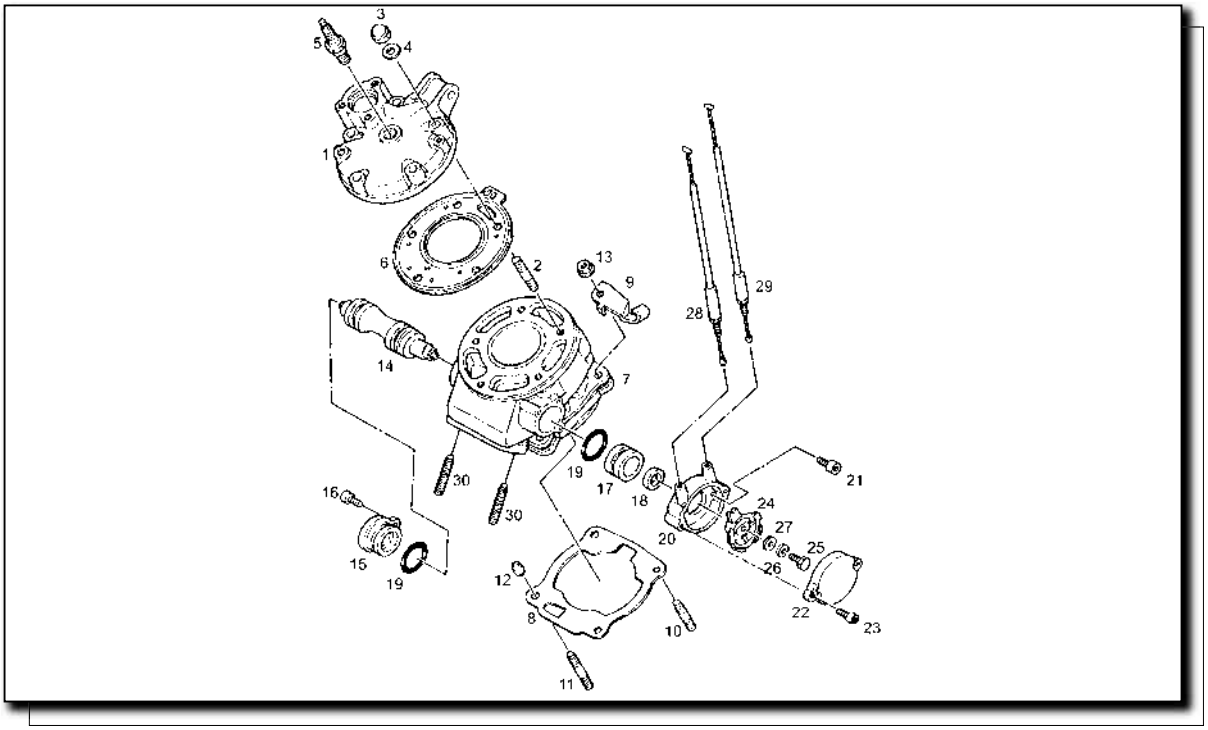
TAKE CARE NOT TO ALLOW THE ROTOR HOLDER TO TOUCH THE ROTOR PROTRUSIONS.

6. Fit:
- Guide pins.
- Crankcase cover gasket.
- Left hand crankcase cover

Crankcase cover bolts:
5 N.m (5kgf.m)

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

CYLINDER, PISTON, CYLINDER HEAD AND EXHAUST VALVE



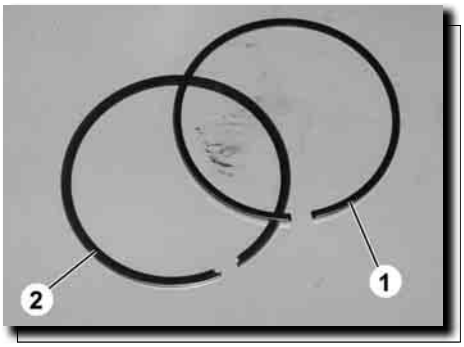
1	Cylinder head
2	Stud
3	Nut
4	Flat washer
5	Spark plug
6	Head gasket
7	Cylinder
8	Cylinder gasket
9	Clutch cable securing plate
10	Stud
11	Stud
12	Pin
13	Nut
14	Exhaust valve
15	Right hand exhaust valve cover
16	Bolt
17	Exhaust valve gasket
18	Oil seal
19	SEEGER Ring
20	Clutch valve activation support
21	Bolt
22	Left hand exhaust valve cover.
23	Bolt
24	Exhaust valve pulley

25	Bolt
26	Washer
27	Washer
28	Exhaust valve front cable
29	Exhaust valve rear cable
30	Stud
31	Set of piston rings
32	Circlip
33	Piston
34	Gudgeon pin

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

FITTING PISTON RINGS, PISTON AND CYLINDER

1. Fit according to the following sequence:
- Secondary ring (scraper) (1).
- Top ring (compression) (2).



N.B.
- LUBRICATE THE PISTON AND THE RINGS WELL WITH ENGINE OIL.

2. Fit:
- Piston
- Connecting rod big end needle bearings
- Gudgeon pin
- Circlip

N.B.
- APPLY ENGINE OIL TO THE GUDGEON PIN.

- THE ARROW ON THE PISTON SHOULD BE TOWARDS THE EXHAUST SIDE.

- BEFORE FITTING THE CIRCLIP, COVER THE CRANKCASE OPENING WITH A CLEAN CLOTH.

3. Fit:
• Guide pins (1).
• Cylinder gasket.

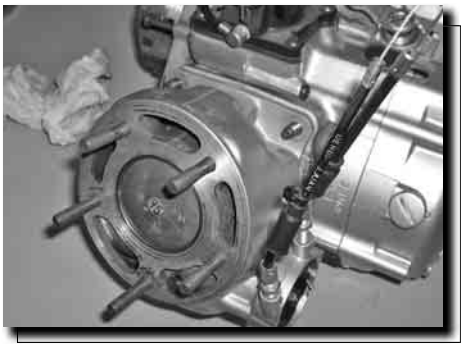
REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

4. Lubricate:
- External surface of the piston
- Rings
- Inner surface of the cylinder

5. Fit:
- Cylinder (1).

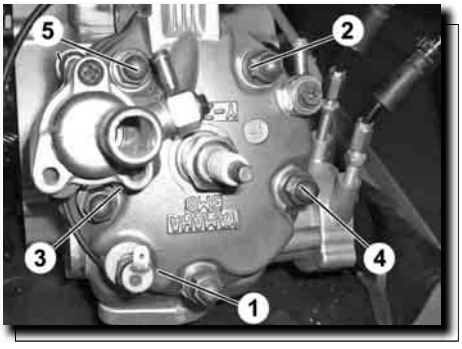
N.B.
- FIT THE CYLINDER WITH ONE HAND WHILE COMPRESSING THE RINGS WITH THE OTHER.

FITTING THE CYLINDER HEAD



1. Fit:
- Cylinder head gasket

2. Fit:
- Cylinder head
- Nut with washer

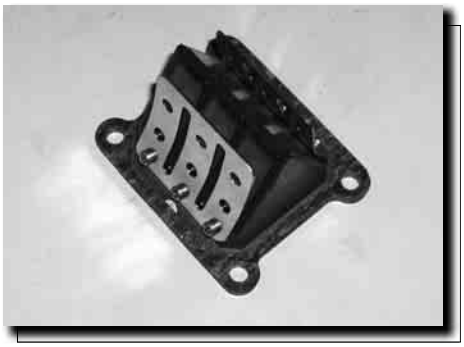


Cylinder head nuts tightening torque:
22 N.m (2,2 kgf.m)

N.B.
- APPLY ENGINE OIL TO THE BOLT THREADS.

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

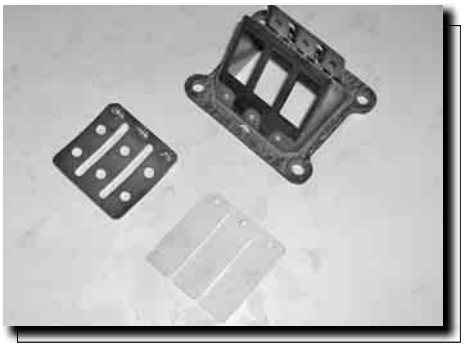
FITTING THE REED VALVE



N.B.
BEFORE FITTING, CHECK THAT THERE ARE NO CRACKS, DISTORTIONS OR BREAKAGES ON THE REED PETALS. IF THERE ARE, THEY MUST BE REPLACED IN THE FOLLOWING WAY:

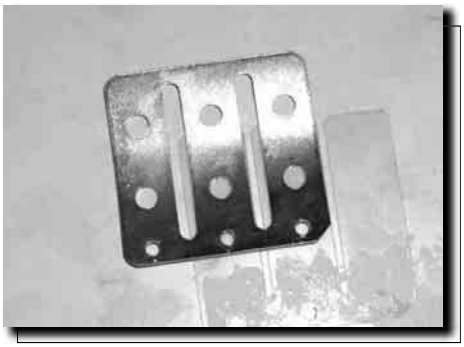
- REMOVE THE SECURING SCREWS FROM THE HEIGHT LIMITER AND FROM THE INLET VALVE PETALS.

- CHECK THAT THERE ARE NO CRACKS IN THE PETALS' SECURING BASE. IF THERE ARE, RENEW THE REEDS.



To refit the reed valve, proceed in the reverse order to dismantling, paying special attention to the correct positioning of the height limiter and the reed (with the bevels matching). The elimination of the height limiter and the type of reed used will modify the performance of the engine and may make it less reliable.

Check the reed cage O- ring and replace it if damaged.



Valve thickness:
0.5 mm.

Height of the stop plate:
8.8 mm.

Valve flexing limit:
0.5 mm.

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

3. Fit:
- Spark plug

Spark plug:
20 N.m (2.0 kgf.m)

14. Fit:
- Oil drain plug
- Fill with 800 c.c. of SAE 10W30 oil through the plug hole located on the right hand crankcase cover.

Oil drain plug:
15 N.m (1.5 kgf.m)

REFITTING THE ENGINE INTO THE FRAME

1. Refitting engine
- Refit engine.

- Suspend the engine from the top support.

- Insert a shaft through the opposite side joining only the swinging arm and chassis to ensure that the swinging arm does not fall from the chassis.

- Fit the swinging arm shaft without inserting it completely, ensuring that it only joins the swinging arm and the chassis.

2. Refitting the engine cradle.
- Fit the engine cradle under the machine.

- Refit the 6 bolts securing the cradle to the engine and to the chassis.

- Fit UNEX clamps.

3. Reconnecting the electrical connections.
- Fit the horn cables.
- Fit the starter motor power supply cable.
- Fit neutral earth cable.
- Fit the earth cable on the right-hand side of the crankhaft.
- Fit the magneto cable.
- Fit the temperature sensor cable.
- Fit the spark plug connector.

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

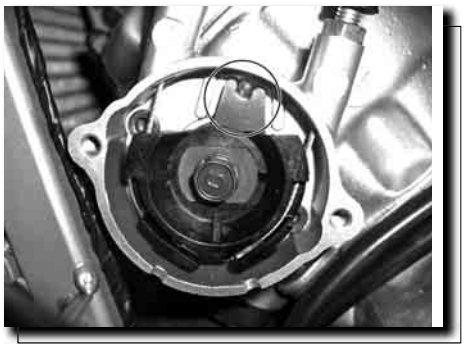
4. Fitting the exhaust valve actuator cable.
- Screw in the two tensioners and fit the cables.

- Switch on the ignition.

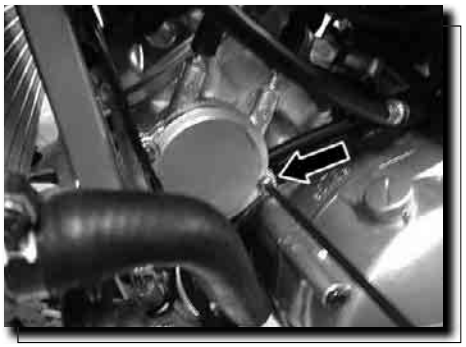
- Centre the pulley as indicated in the figure, and adjust the tension of the cable by screwing upwards.

- Turn the ignition off.

- Fit the cover (1).



N.B.:
ENSURE THAT THE BATTERY IS CONNECTED.

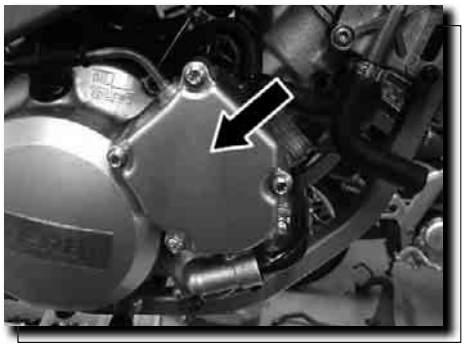


5. Fitting the clutch cable.
- Fit the clutch cable.

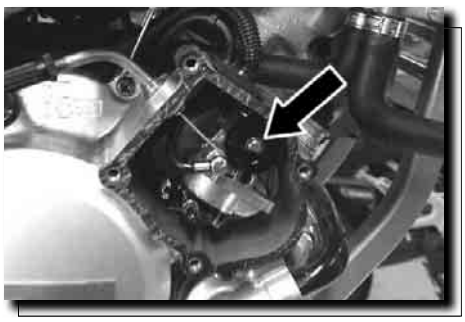
- Fit the crankshaft tensioner cable.

- Fit handlebar clutch cable.

6. Refitting the oil tank to engine pipe.
- Fit tank pipe.



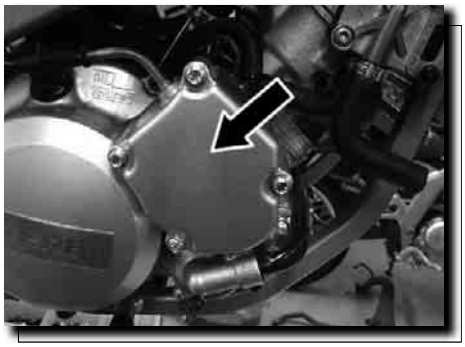
7. Fit oil pump cable.
- Install cables and fit them onto the engine.



REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

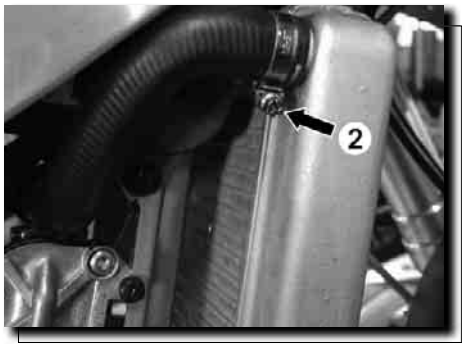
- Fit securing circlip with torsion recovery pulley and spring.

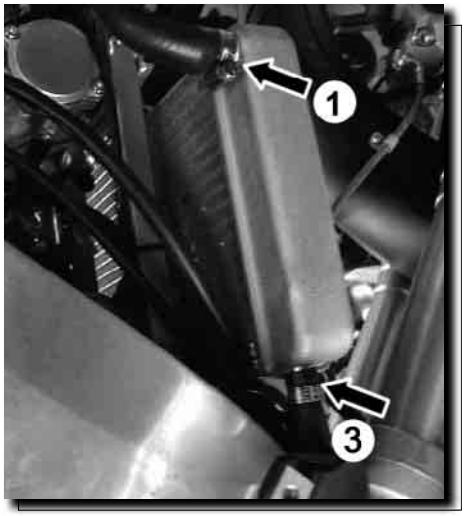
- Fit cover.



8. Refitting the radiator.
- Fit the radiator.

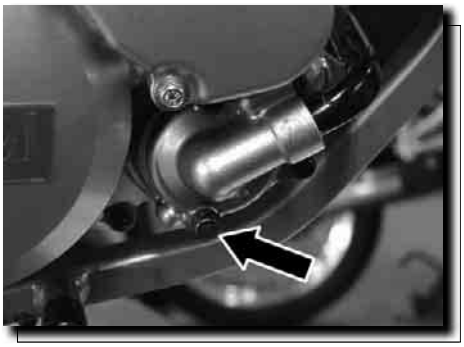
- Fit the system input (1) and output (2) hoses and tank hose (3).





REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

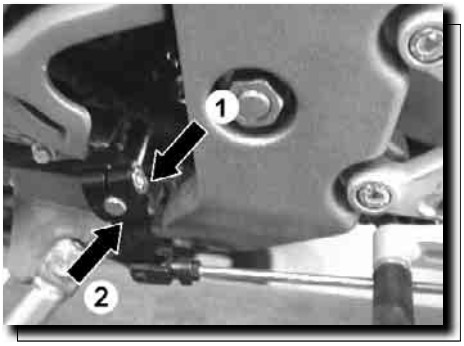
- Refill the cooling system with coolant.



9. Fitting chain.
- Fit chain connecting link.

10. Fitting gear lever.
- Refit backlash bush to gear change (2).

- Fit bolt (1).



11. Refitting carburettor.
- Fit clamp and cylinder head pipe to carburettor.

- Refit carburettor.

- Tighten carburettor to cylinder pipe clamp bolt.

- Refit filter box-carburettor pipe (this is secured with a screw clamp).

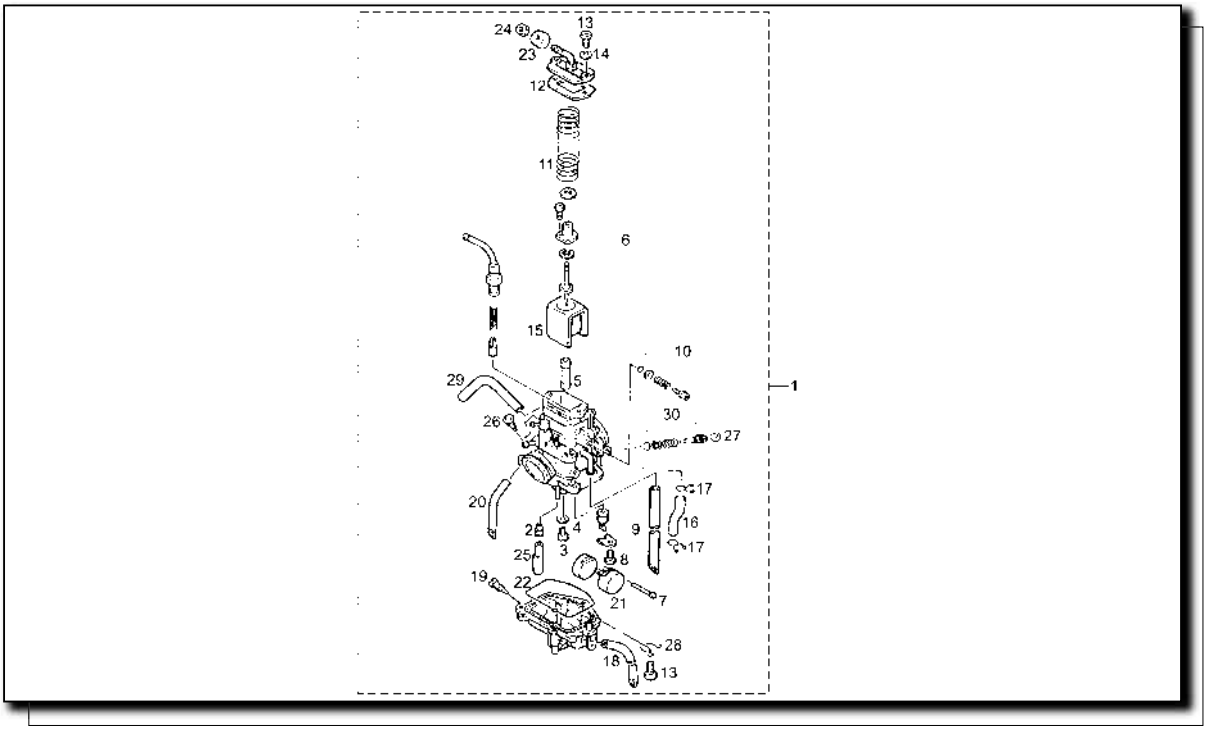
12. Refitting exhaust pipe.

13. Refitting fuel tank.

14. Refitting side covers.

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

CARBURETTOR



1	Air screw assembly
2	Idler jet
3	Main jet
4	Washer
5	Spray
6	Spray needle
7	Pin
8	Bolt
9	Needle valve
10	Idler screw assembly
11	Spring
12	Seal
13	Bolt
14	Washer
15	Throttle valve
16	Pipe
17	Tube clip
18	Breather tube
19	Drain screw
20	Breather tube
21	Float
22	Ring
23	Sheath
24	Cable adjusting nut

25	Washer
26	Filter
27	Cover
28	Clip
29	Drain pipe

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

DISMANTLING

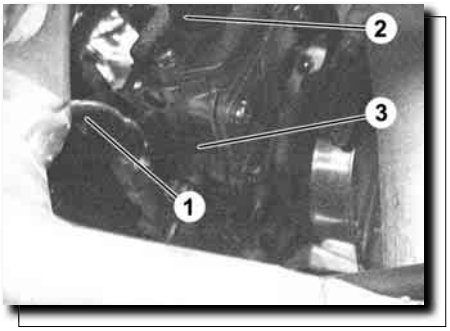
1. Extract:
- Rider's seat.
- Fairing.
- Fuel tank.
- Air filter canister.

See "**SEAT, SIDE COVERS AND FUEL TANK**" section in **CHAPTER 3**.

2. Drain:
- Fuel (carburettor bowl).

N.B.
PLACE A CLOTH UNDER THE FUEL DRAIN PIPE TO ABSORB SPILT FUEL.

WARNING
PETROL IS HIGHLY INFLAMMABLE. AVOID SPILLING PETROL ON TO A HOT ENGINE.



3. Disconnect:
- Breather pipe.
- Fuel pipe.
- Drain hose.

4. Loosen:
- Pipe clamp screws.
- Bolt (air filter canister).

N.B.
PULL THE MANIFOLD CLAMP BACKWARDS

- Extract the rubber seal between the carburettor and the filter cansiter.

- Pull the carburettor backwards.

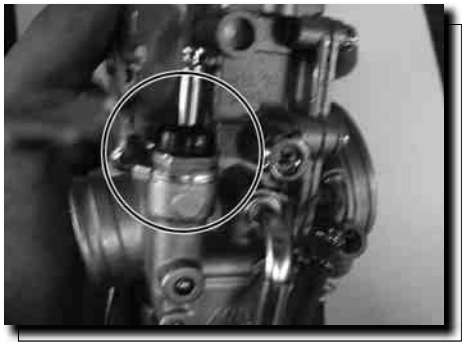
5. Extract:
- Throttle cable.

Remove the carburettor cover together with the closing valve.

- Choke cable.

Remove the choke together with the spring.
- Completely drain the antifreeze.

- Extract the heating hoses from the carburettor.



REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

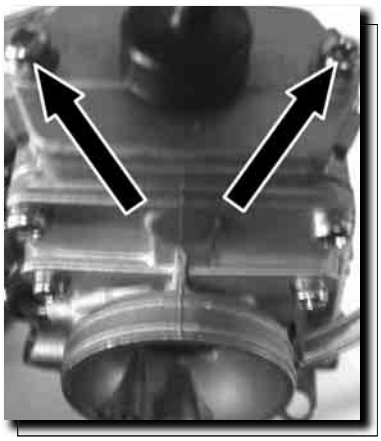
DISMANTLING

N.B.
THE PARTS BELOW CAN BE CLEANED AND INSPECTED WITHOUT DISMANTLING THE CARBURETTOR. (ALL THE INTERNAL PARTS, EXCEPT THE CHOKE, CAN BE CLEANED AND INSPECTED WITHOUT DISMANTLING THE CARBURETTOR).

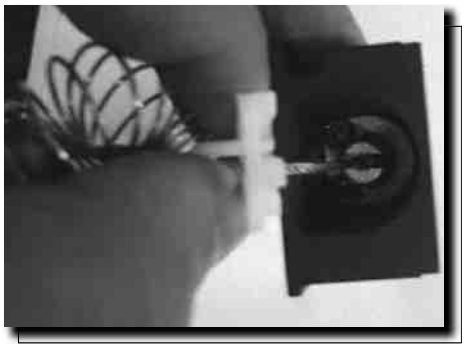
- CLOSING VALVE

- CLOSING VALVE NEEDLE

1. Extract:
- Complete carburettor.



2. Extract:
- Throttle cable



N.B.
COMPRESS THE GAS VALVE RETURN SPRING AGAINST THE COVER AND EXTRACT THE THROTTLE CABLE TERMINAL THROUGH THE GAS VALVE CHANNEL.

3. Extract:
- Cold start (choke) valve puller bracket.

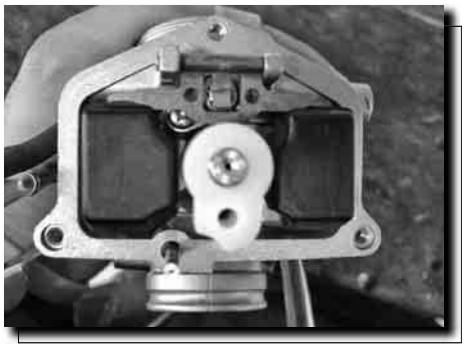
REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

4. Extract:
- Low speed circuit air quantity regulator ("compensator") screw.
- Spring
- Washer
- O-ring

5. Extract:
- Carburettor bolts and bowl.

N.B.
THIS ENABLES ACCESS TO THE MAXIMUM, MINIMUM AND COLD START BORES, AS WELL AS THE FLOAT AND ITS NEEDLE VALVE.

Compensator screw:
¼ de vuelta.



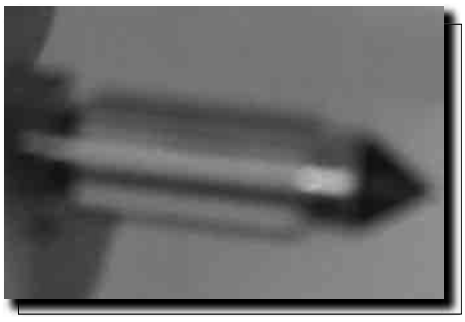
INSPECTION

1. Clean:
- All the components of the carburettor with solvent (take care not to damage the carburettor bowl gasket or the cold start valve O-ring).

2. Blow:
- Through all the air, oil and petrol passages with compressed air.

3. Check:
- the weight of the float- engraved on it (14 grams) – with scales. = > **If it exceeds this weight, renew it**.

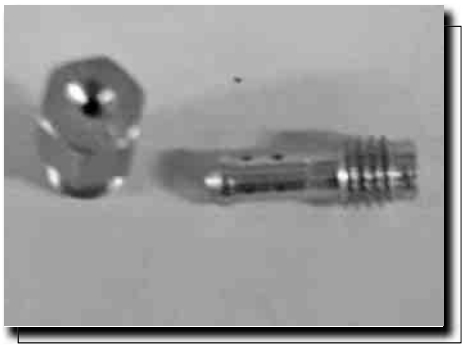
- the needle controlling entry of petrol into the bowl, together with its float connecting stem spring. => **If its condition is not correct, renew it.**



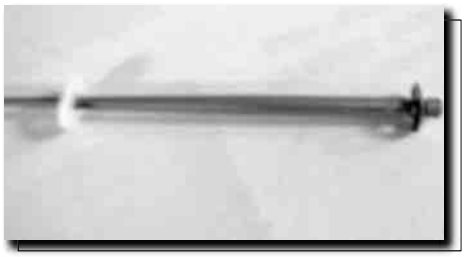
REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

I – The condition of the cold start system piston valve. => In the event of the vulcanised closing seat or the metal body of the piston being damaged (scratches and/or corrosion that exceed 25% of its total area).

- Size of the bores based on the numbers etched onto them. => If they are not in agreement with that specified, replace them with suitable ones. Failure to do so may result in the performance of the engine being affected.

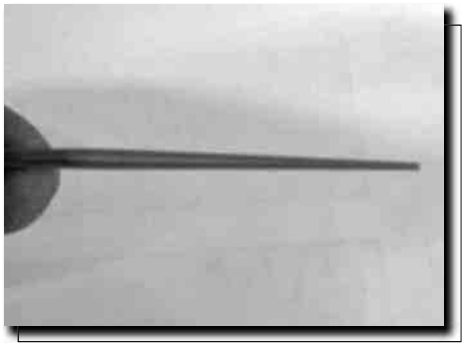


- The position of the tapered dosing needle. It should be located in the centre slot of the three available.



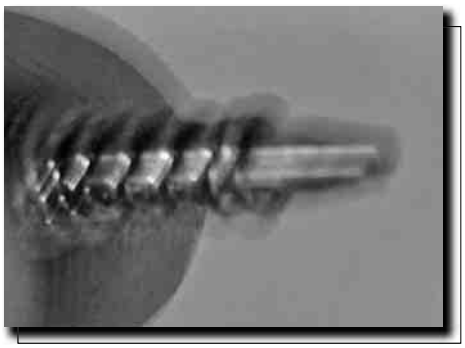
N.B.
MOVING THE CIRCLIP ON THE NEEDLE UPWARDS RESULTS IN A LEANER MIXTURE, AND MOVING IT DOWNWARDS RESULTS IN A RICHER MIXTURE. THIS ALLOWS ADJUSTMENTS TO BE MADE FOR EXTREME CLIMATIC CONDITIONS.

- THE CONDITION OF THE TAPERED DOSING NEEDLE. => IF THERE IS DAMAGE VISIBLE ON ITS CIRCUMFERENCE, CHANGE IT

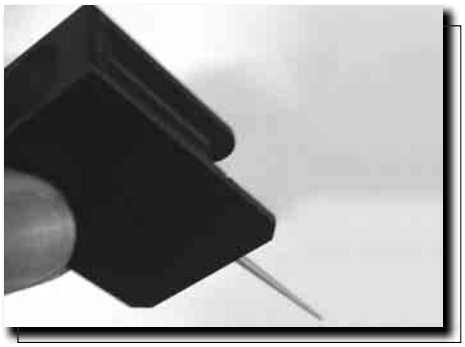


REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

- The absence of scratches on the minimum circuit air regulator screw cone. These would affect its performance.



- The absence of scratches on the sliding valve. => In the event of these exceeding 25% of its total area, renew it.



N.B.
BE SURE TO FIT A VALVE WITH THE SAME CHARACTERISITCS (SEE MARKINGS ON ITS BASE).

REFITTING

This is a reversal of the "**REMOVAL**" procedure.

Take care with the following points:

1. Fit:
- Spring (closing valve).
- Closing valve assembly

With the carburettor cover and throttle cable.

- Spring (choke).
- Choke assembly.

With the choke and choke cable.

2. Fit:
- Carburettor.

3. Tighten:
- Clip (air filter box).
- Clamp screws.

4. Connect:
- Drain hose.
- Breather pipe.
- Fuel pipe.

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

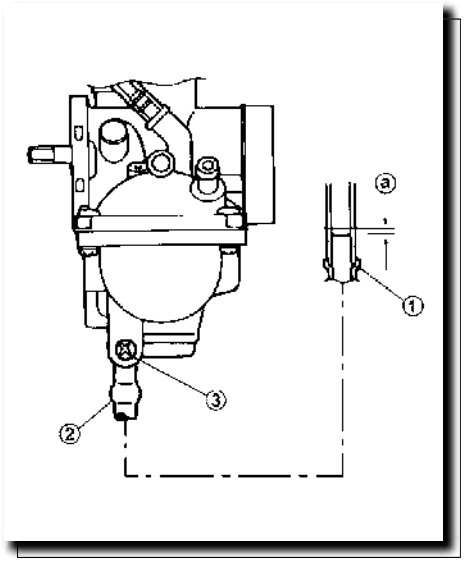
5. Adjust:
- Idle speed

See the "**MEASURING AND ADJUSTING IDLE SPEED**" section in **CHAPTER 3**.

6. Adjust:
- Throttle cable play.

See the "**ADJUSTING THE THROTTLE CABLE**" section in **CHAPTER 3**.

ADJUSTING THE FUEL LEVEL



1.Measure:
- Fuel level (a).

Outside that specified => **Adjust.**

Fuel level:
1.5 – 2.5 mm below the bowl line

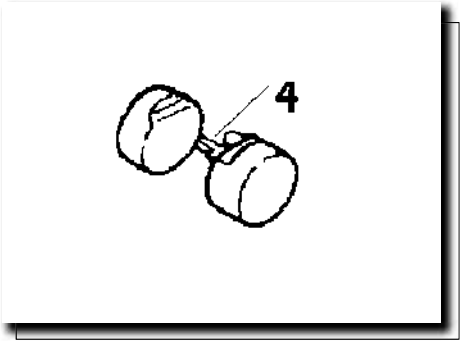
Adjustment steps:
- Place the motorcycle on a flat surface.

- Place a jack or a support under the engine to ensure that the carburettor is positioned vertically.
- Connect the fuel level meter (1) to the drain pipe (2).

- Loosen the drain screw (3).

- Hold the meter vertically and close to the line of the carburettor bowl.

- Measure the fuel level (a) with the meter.



- If the level is incorrect, adjust it.

- Remove the carburettor.

- Inspect the valve seat and needle valve.

- If these parts are worn, replace both.

- If they are normal, adjust the float level by bending slightly the edge (4) of the float.

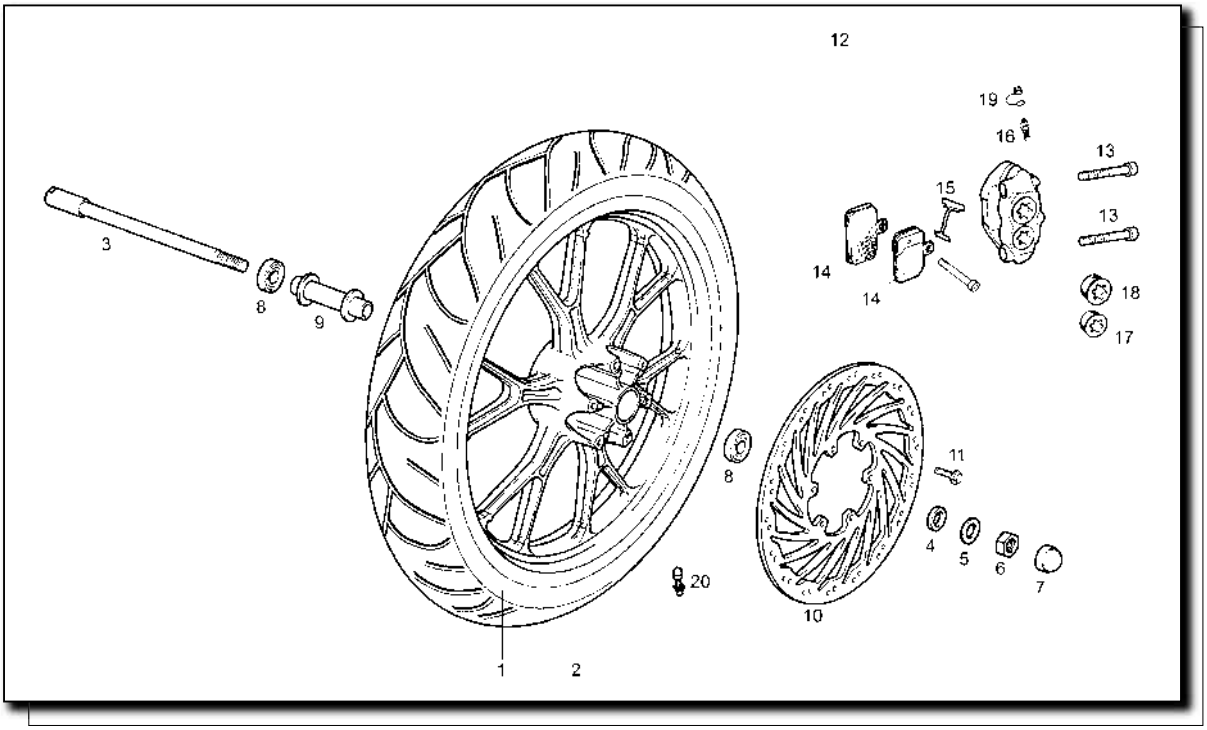
Float height:
15.5 - 16.5 mm

- Fit the carburettor.

- Check the fuel level once again.

REASSEMBLING THE ENGINE AND MAKING ADJUSTMENTS

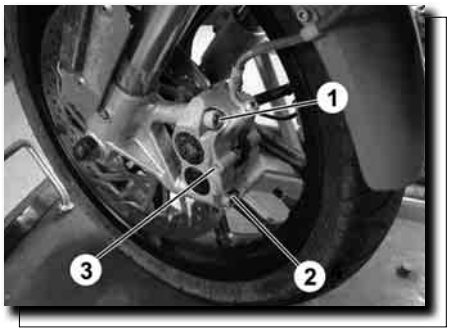
FRONT WHEEL DIAGRAM



1	Front 110/80 tyre
2	Front wheel assy.
3	Front wheel axle
4	Disk side bush
5	Flat washer
6	Wheel axle head nut
7	Axle nut protector
8	Bearing 6202
9	Front wheel bearing separator sub-assembly
10	300 mm Ø front disk brake
11	Brake disk securing bolt
12	Front brake calliper
13	M10 bolt
14	Front brake pad
15	Front brake pad securing spring
16	Calliper bleeding assembly
17	M31 radial calliper cover
18	M34 radial calliper cover
19	Bleed nipple
20	Bleed nipple

CHASSIS – FRONT WHEEL AND BRAKES

DISMANTLING



WARNING
- ENSURE THAT THE MOTORCYCLE IS SUPPORTED FIRMLY AND THERE IS NO RISK OF IT FALLING.

- PLACE THE MOTORCYCLE ON A FLAT SURFACE.

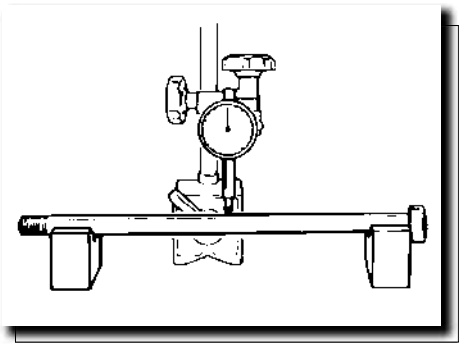
1. Extract:
- Front brake calliper (Bolts 1 and 2).

2. Extract:
- Nut protecting cover.
- Nut (left side).

3. Raise:
- Front wheel
(Put a suitable support under the engine).

4. Extract:
- Front wheel axle.
- Front brake disk assembly.
- Dustguard/spacer.
- Front wheel.

INSPECTING THE FRONT WHEEL



1. Inspect:
- Front wheel axle. (By rolling it on a flat surface).

Warping => **Replace.**

WARNING
DO NOT TRY STRAIGHTENING A WARPED AXLE.

Wheel axle warp limit:
0,25 mm

2. Inspect:
- Neumático delantero.

Damage/wear => **Replace.**

CHASSIS – FRONT WHEEL AND BRAKES

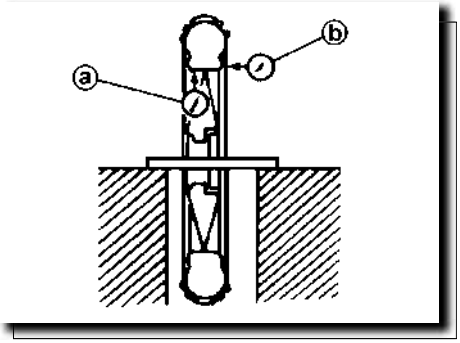
See the "**INSPECTING THE TYRES**" section in **CHAPTER 3**.
- Front wheel

See the "**INSPECTING THE WHEELS**" section in **CHAPTER 3**.

3. Check:
- Spokes.

Warps/damage => **Replace.**

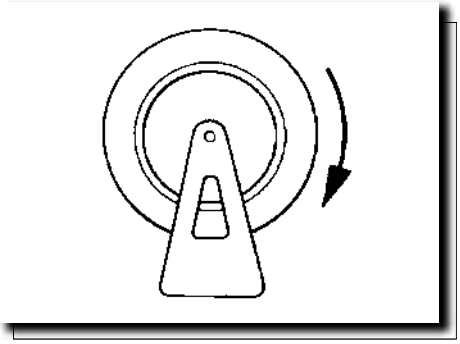
5. Measure:
- Distortion of the front wheel



Above that specified => **Replace**.

Distortion limits for the front wheel:
Radial (a):
0,5 mm
Lateral (b):
0,8 mm

6. Check:
- Front wheel bearings.

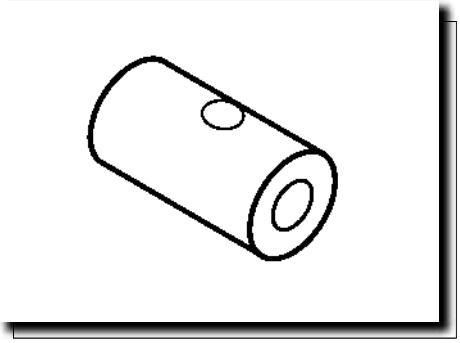


Bearings allow play in the wheel hub or the wheel does not turn freely => **Replace.**

- Retaining rings.

Damage/wear => **Replace.**

7. Inspect:
- Spacer.



With scratches/worn => **Replace the spacer and the retaining ring.**

CHASSIS – FRONT WHEEL AND BRAKES

INSPECTING THE SPEEDOMETER

This speedometer is fitted with a Hall Effect sensor. As this is a precision magnetic device, it should not be dismantled. In the event of it becoming faulty, the unit must be renewed.

DISMANTLING THE FRONT DISK CALLIPER

- Loosen the banjo bolt (1) from the bottom end of the brake pipe and tighten it slightly.

- Unscrew the calliper mounting bolts (2) and separate the calliper (3) backwards from the disk.

PRECAUTION
CLEAN OFF ANY SPILT BRAKE FLUID REMAINS IMMEDIATELY.

Fitting the front calliper:
- Fit the bottom end of the brake pipe and the calliper.
- Tighten to nominal torque.

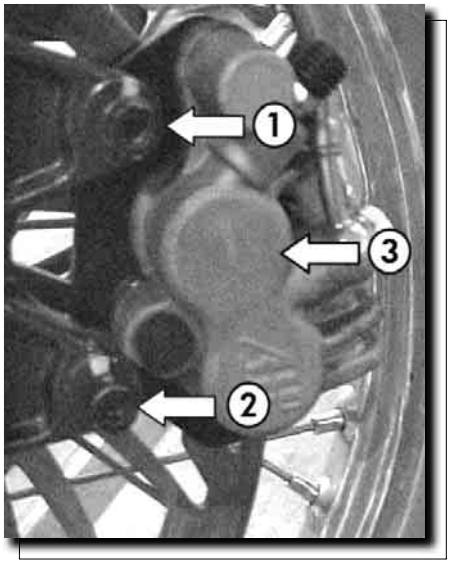
Calliper mounting bolts:
35 ÷ 40 N.m (3,5 ÷ 4 kgf.m)

- Tighten the brake banjo bolt.

- Check brake fluid level.

- Bleed the brake system pipe (consult "Bleeding the brake system pipe" in this chapter).

- Check the condition of the braking force to see if any resistance is noted or any loss of fluid.



WARNING
DO NOT ATTEMPT TO RIDE THE MOTORCYCLE UNTIL THE BRAKE LEVER IS OPERATING PROPERLY. PUMP THE LEVER UNTIL THE PADS ARE AGAINST THE DISK. IF NOT, THE BRAKES WILL NOT WORK THE FIRST TIME THE LEVER IS USED.

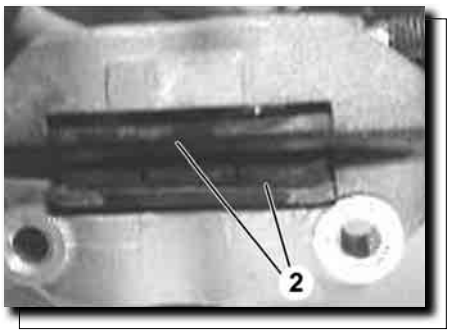
CHASSIS – FRONT WHEEL AND BRAKES

Extracting the front brake pads.
- Remove the front brake calliper (see "Dismantling the front brake calliper" in this chapter).

Extract:
- Pad springs (1).
- Pin.
- Brake pads (2).

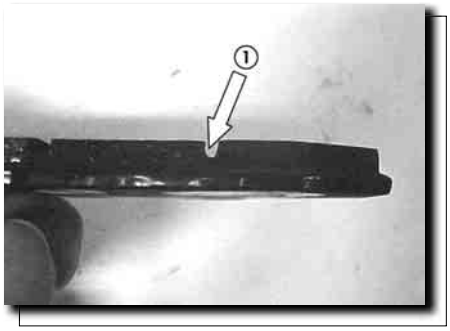
Fitting the front brake pads
- Press the calliper pistons in manually.
- Fit the pads inside the calliper.
- Adjust the pad springs.

WARNING
DO NOT ATTEMPT TO RIDE THE MOTORCYCLE UNTIL THE BRAKE LEVER IS OPERATING FULLY. THIS IS ACHIEVED BY PUMPING THE LEVER UNTIL THE PADS ARE AGAINST THE DISK. IF NOT, THE BRAKES WILL NOT WORK THE FIRST TIME THE LEVER IS USED.

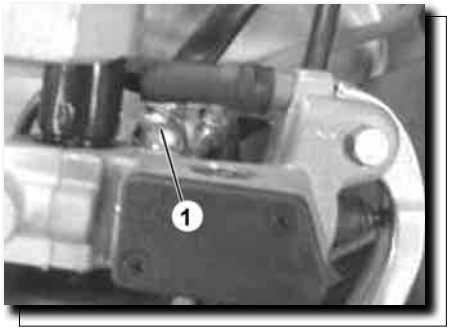


Inspecting the pads for wear
- Remove the front brake pads.

- Examine both brake pads.
If the wear has caused the wear indicating groove (1) to disappear, both pads must be renewed.



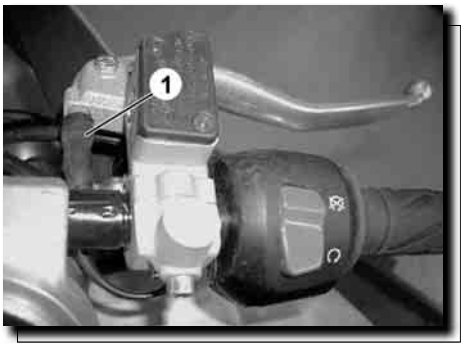
Extracting the front brake cylinder.
- Extract the bolt (1) and remove the flexible pipe from the brake cylinder reservoir.



CHASSIS – FRONT WHEEL AND BRAKES

N.B.
THE MASTER CYLINDER (1) IS INCORPORATED INTO THE FRONT BRAKE LEVER ASSEMBLY.

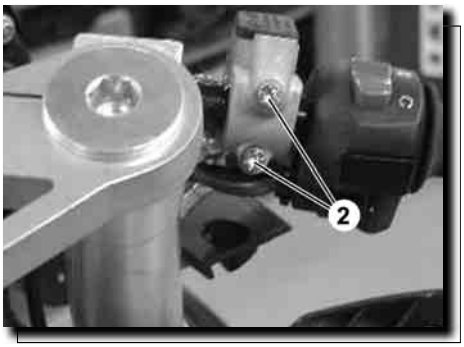
- EXTRACT THE SCREWS (2) AND THE FRONT BRAKE LEVER ASSEMBLY.



PRECAUTION
CLEAN OFF ANY SPILT BRAKE FLUID REMAINS IMMEDIATELY.

Extract:
- Brake lever mounting bolt and nut.
- Brake lever.

Fitting the front master cylinder:
- Fit the brake lever assembly and tighten the securing screw.



- Tighten the flexible brake pipe bolt.

- Bleed the brake system pipe (consult "Bleeding the brake system pipe" in this chapter).

- Check the condition of the braking force to see if any resistance is noted or any loss of fluid.
Checking the brake lever master cylinder (visual check):

- Extract the master cylinder (consult "Extracting the front master cylinder" in this section).

- Dismantle the front master cylinder:

- Check that there are no scratches, corrosion or holes on the inner walls of the master cylinders and on the outer part of each piston.

- If any damage is discovered on the master cylinder or on the pistons, change them.

- Examine the primary seal and secondary seal.

- If the seal is worn, soft (perished) or swollen, change the piston assembly to renew the seals.

- If fluid loss is noticed at the brake lever, change the seals.

CHASSIS – FRONT WHEEL AND BRAKES

Checking the brake calliper main cylinder:
- Check that the anti-dust boots are not damaged.
If they are, change them.

- Check that the piston return is not damaged. If it is, renew it.

- Check that the relief port and feed port are not blocked.
if the relief port is blocked, the brake pads will bind on the disk. Inject compressed air to clean the ports.

Extracting the brake disk:
- Remove the front wheel.

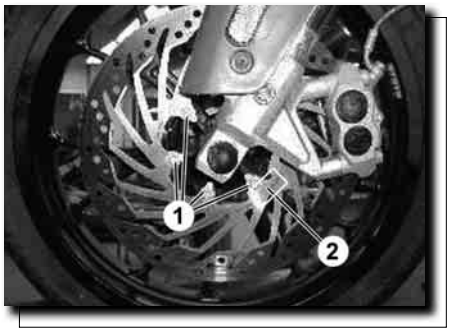
- Unscrew the mounting bolts and extract the disk.

Fitting the brake disk
- Fit the brake disk onto the front wheel so that side (2) faces outwards.

- Apply a temporary blocking device to the threads of the brake disk mounting bolts(1).

- Tighten the front brake disk mounting bolts(1).

Nominal tightening torque:
1,0 ~ 1,2 Kgf.m (10 ~ 12 N.m)



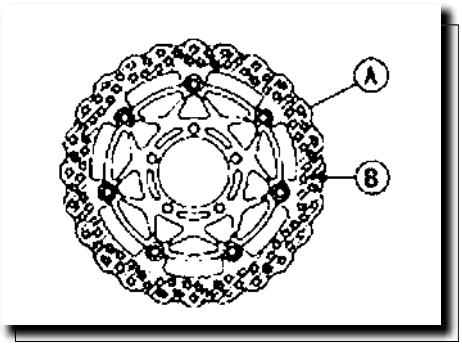
Wear to the brake disk:
- Measure the thickness of the disks (A) at the point where they are most worn.

- If the disk is more worn than specified in the service limit, renew it.

Measurement area (B).

Standard thickness of the front brake disk.
3,8 ÷ 4,1 mm

Service limit:
3,50 mm



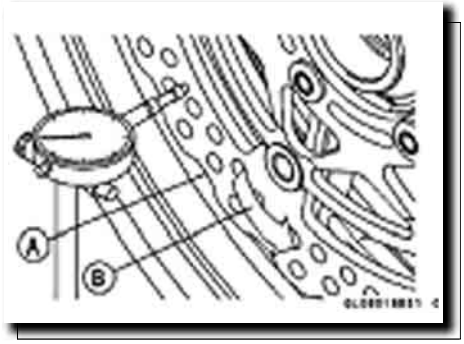
CHASSIS – FRONT WHEEL AND BRAKES

Brake disk distortion:
- Raise the motorcycle on the jack so that the tyre is clear of the ground.

- To check the front disk, turn the handlebars completely to one side.

- Place a dial calibrator against the disk (A) as shown, and measure the disk's deviation from centre as the tyre is turned by hand (B).

- If the deviation from centre exceeds the service limit, renew the disk.



Disk deviation from centre:
Standard:
less than 0.15mm

Service limit:
0,3 mm

Bleeding the brake system pipe
The brake fluid has a very low compression coefficient, with the result that almost all the movements of the brake lever are transmitted directly to the calliper for braking. Air however compresses easily. When air enters the brake system pipes, the movement of the brake lever is partially used up in compressing the air. This causes the lever to feel spongy and leads to a loss of braking power.

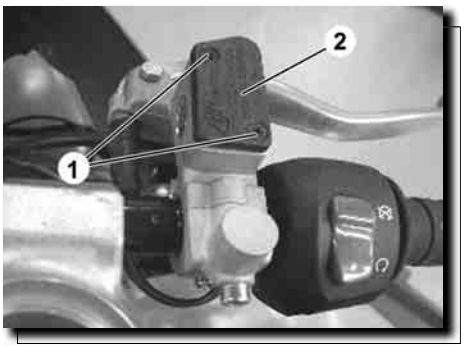
WARNING
BE SURE TO BLEED AIR OUT OF THE BRAKE SYSTEM WHEN THE BRAKE LEVER FEELS SPONGY AFTER CHANGING THE BRAKE FLUID OR WHEN THE BRAKE SYSTEM PIPE HAS BEEN LOOSENED FOR ANY REASON.

Extract:
- Bolts (1).

- Reservoir cap (2).

- Fill the reservoir with brake fluid up to the top reservoir line.

- With the cap removed, pump the brake lever slowly several times until no bubbles can be seen rising through the liquid.



CHASSIS – FRONT WHEEL AND BRAKES

Purge the air completely from the master cylinder using this procedure.
- Remove the transparent plastic cap from the bleed nipple and place the other end of the pipe in a container.

- Repeat the following procedure until there is no air left emerging from the plastic pipe:

- Pump the brake lever until it becomes hard and holds the brakes down.

- Open and close the purge valve quickly while keeping the brake on.

- Release the brake.

N.B.
CHECK THE FLUID LEVEL FREQUENTLY DURING THE BLEEDIING OPERATION AND REPLENISH THE RESERVOIR WITH BRAKE FLUID WHEN NECESSARY. IF THE RESERVOIR EMPTIES COMPLETELY OF BRAKE FLUID AT ANY TIME THE DURING BLEEDING PROCEDURE, PERFORM THE BLEEDING PROCEDURE ALL OVER AGAIN FROM THE BEGINNING, SINCE AIR WILL HAVE ENTERED THE PIPE. TAP THE BRAKE PIPE LIGHTLY FROM THE CALLIPER TO THE RESERVOIR TO ACHIEVE A MORE COMPLETE BLEEDING.

- Extract the transparent plastic pipe.

Fit:
- Reservoir cap.

- Cap securing screws.

-Tighten the bleed valve and fit the rubber hood.

- Check brake fluid level.

- Once the bleeding process has been carried out, check the efficiency of the brake to see if there is any resistance or any fluid loss.

WARNING
WHEN WORKING WITH THE DISK BRAKE, TAKE THE FOLLOWING PRECAUTIONS:

1) NEVER RE-USE BRAKE FLUID.

2) DO NOT USE FLUID FROM A CONTAINER THAT HAS BEEN LEFT OPEN OR HAS BEEN LEFT UNUSED FOR A PROLONGED PERIOD OF TIME.

CHASSIS – FRONT WHEEL AND BRAKES

3) DO NOT MIX TWO TYPES OR BRANDS OF FLUID FOR USE IN THE BRAKE. THIS LOWERS THE BRAKE FLUID EVAPORATION POINT AND MAY RESULT IN THE BRAKES NOT WORKING EFFICIENTLY. IN ADDITION, IT MAY CAUSE DETERIORATION OF THE BRAKE PARTS.

4) DO NOT LEAVE THE RESERVOIR CAP OFF AT ANY TIME, TO PREVENT CONTAMINATION OF THE FLUID.

5) DO NOT CHANGE THE FLUID IN RAINY OR VERY WINDY CONDITIONS.

6) EXCEPT ON THE BRAKE LININGS AND THE DISK, USE ONLY BRAKE FLUID, ISOPROPILIC ALCOHOL OR ETHYL ALCOHOL FOR CLEANING BRAKE PARTS. DO NOT USE ANY OTHER TYPE OF LIQUID FOR CLEANING THESE PARTS.

PETROL, ENGINE OIL OR ANY OTHER PETROLEUM DISTILLATE WILL CAUSE RUBBER PARTS TO DETERIORATE. IF OIL IS SPILT ON ANY PART, IT WILL BE DIFFICULT TO CLEAN COMPLETELY AND MAY DETERIORATE THE RUBBER USED IN THE DISK BRAKE.

7) ON HANDLING THE DISK BRAKE LININGS OR THE DISK, TAKE CARE TO ENSURE THAT NO BRAKE FLUID COMES INTO CONTACT WITH THEM. CLEAN ANY REMAINS OF BRAKE FLUID THAT ACCIDENTALLY COMES INTO CONTACT WITH THE LININGS OR WITH THE DISK WITH A SOLVENT WITH A HIGH INFLAMMATION POINT. DO NOT USE ONE THAT LEAVES GREASY RESIDUES. IF LININGS CANNOT BE CLEANED SATISFACTORILY, CHANGE THEM FOR NEW ONES.

8) BRAKE FLUID DESTROYS PAINTED SURFACES RAPIDLY. CLEAN OFF ANY SPILT REMAINS IMMEDIATELY.

9) IF ANY OF THE BRAKE SYSTEM PIPE SECURING SYSTEMS OR THE BLEED VALVE OPENS AT ANY TIME, THE AIR CAN BE BLED FROM THE BRAKE SYSTEM PIPE.

ASSEMBLING THE FRONT WHEEL

1. Fit:

- Speedometer assembly

CHASSIS – FRONT WHEEL AND BRAKES

ASSEMBLING THE FRONT WHEEL

Reverse the "**DISMANTLING**" procedures. Take care

with the following points:

1. Lubricate:
- Front wheel axle.
- Bearing.
- Retaining rings.

Recommended lubricant:
Lithium soap based grease

2. Fit:
- Front wheel

3. Tighten:
- Front wheel axle.
- Axle nut (front wheel).

ATTENTION
BEFORE TIGHTENING THE WHEEL AXLE, PUSH THE FRONT FORKS DOWN SEVERAL TIMES, HOLDING THE HANDLEBARS, TO CHECK THEIR OPERATION.

Axle nut:
70-80 N.m (7-8 kgf.m)

WARNING
ENSURE THAT THE SPEEDOMETER CABLE GUIDE IS CORRECT.

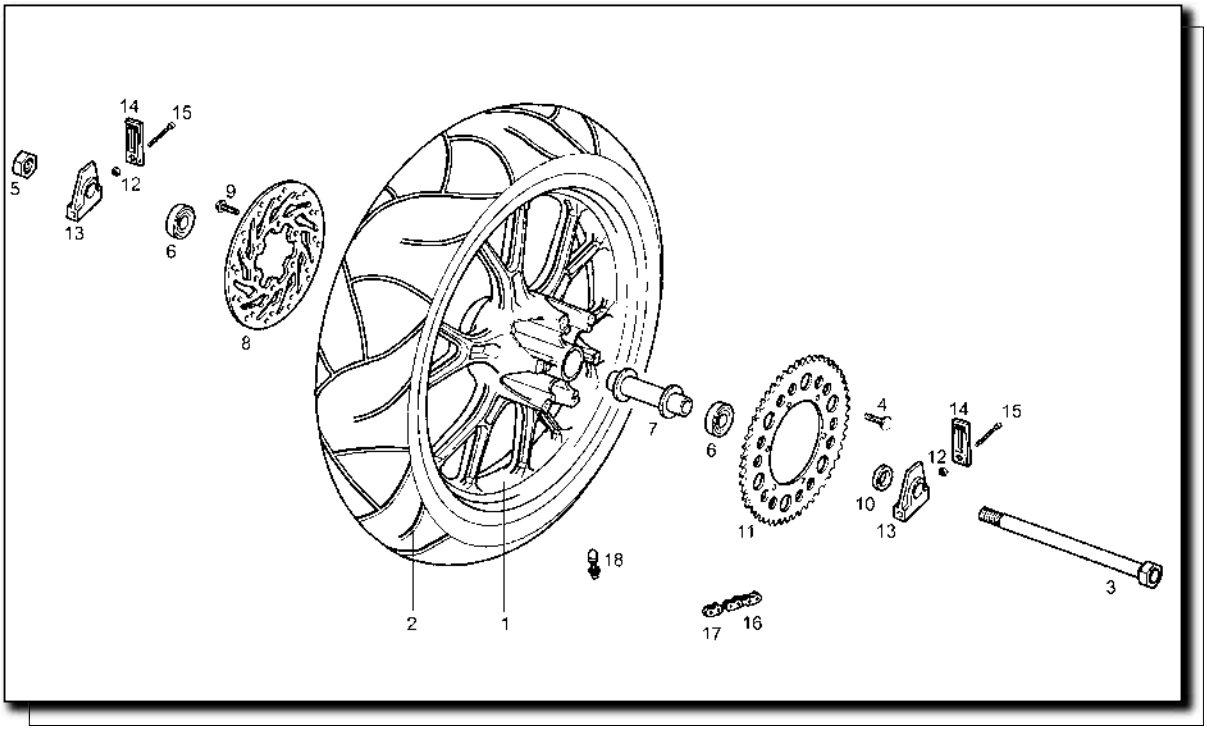
4. Check:
Front brake functioning
Irregular functioning => **Dismantle or check again**.

- Brake lever play

See the "**ADJUSTING THE FRONT BRAKES** " section in "**CHAPTER 3**.

REAR WHEEL AND BRAKES

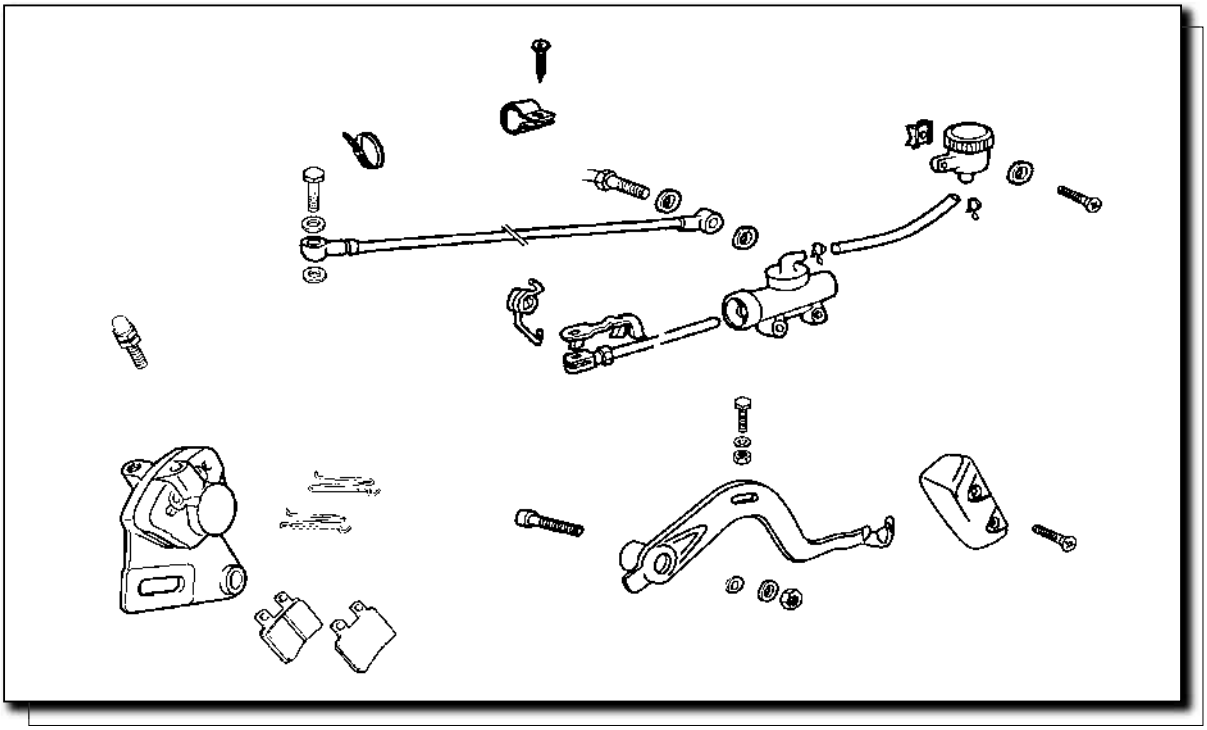
WHEEL DIAGRAM



1	Rear wheel assembly
2	140/70 17" rear tyre
3	Rear wheel axle assembly
4	Drag plate securing bolt.
5	M16 hexagonal nut
6	Bearing
7	Bearing separator
8	Rear brake disk
9	Brake disk securing bolt
10	GPR plate separator bush
11	Z-50 drag plate
12	Self locking nut
13	Wheel tensioner
14	Tensioner cap
15	Chain tensioner bolt
16	130P secondary chain
17	Coupling link.
18	Valve

REAR WHEEL AND BRAKES

BRAKE DIAGRAM



	Rear brake calliper
	Rear brake calliper bleed nipple
	Rear brake pad
	Rear brake pad fixing spring
	Rear brake cylinder assembly.
	Reservoir to cylinder to pipe
	Clamp
	Brake cylinder protector
	Securing screw
	Washer
	Self locking nut
	Brake pedal assembly
	Rear brake cylinder bar assy.
	Brake fluid reservoir
	M50 bolt
	Securing washer
	Securing nut
	Rear brake puller
	Securing screw
	Washer
	M10 nut
	Rear brake fluid pipe
	Stop switch
	Hydraulic pipe outlet

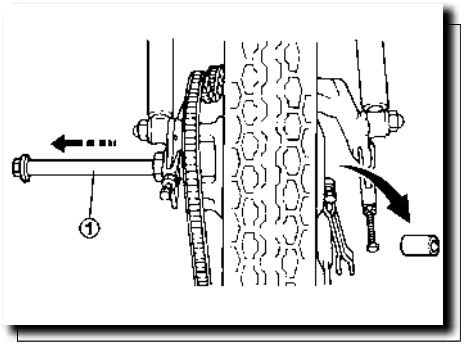
	Clip
	Rear calliper bleed valve
	Lever protector
	Rear brake puller separator bush
	Bush

REAR WHEEL AND BRAKES

DISMANTLING

WARNING
- ENSURE THAT THE MOTORCYCLE IS SUPPORTED FIRMLY AND THERE IS NO RISK OF IT FALLING.
- PLACE THE MOTORCYCLE ON A FLAT SURFACE.

1. Extract:
- Wheel axle (1).
- Spacer.

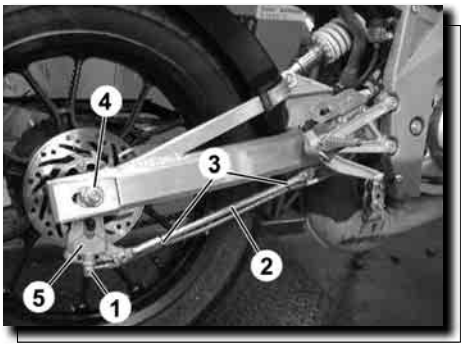


N.B.
ON WITHDRAWING THE WHEEL AXLE, THE SPACER WILL DROP DOWN. TAKE CARE NOT TO LOSE IT.

2. Extract:
- Rear wheel.

N.B.
ON EXTRACTING THE WHEEL, PUSH THE WHEEL FORWARDS TO REMOVE THE DRIVE CHAIN, THEN EXTRACT THE WHEEL BACKWARDS TO AVOID THE BRAKE CALLIPER.

DISMANTLING THE REAR DISK CALLIPER



- Loosen the bolt at the bottom end of the flexible brake hose and tighten it slightly (1)

- Unscrew the bolt securing the brake puller (2) and remove the clips (3) joining the flexible hose to the puller.

- Extract the wheel axle (4).

- Remove the brake calliper (5).

PRECAUTION
CLEAN OFF ANY SPILT BRAKE FLUID REMAINS IMMEDIATELY.

REAR WHEEL AND BRAKES

Fitting the rear calliper
- Fit the bottom end of the flexible brake pipe and the calliper.

Fit the wheel axle, the brake puller and the flexible hose securing clips.

Nominal torque (wheel axle):
110-130 N.m (11-13 kgf.m)

Tighten to nominal torque (brake puller):
35-40 N.m (3,5 – 4 kgf.m)

- Tighten the brake banjo bolt.

- Check brake fluid level.

- Bleed the braking system pipe (consult "Bleeding the brake system pipe", in the chapter corresponding to the front brakes).

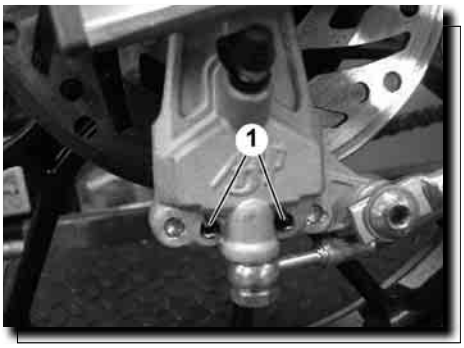
- Check the condition of the braking force to see if any resistance is noted or any loss of fluid.

WARNING
DO NOT ATTEMPT TO RIDE THE MOTORCYCLE UNTIL THE BRAKE LEVER IS OPERATING PROPERLY. PUMP THE LEVER UNTIL THE PADS ARE AGAINST THE DISK. IF NOT, THE BRAKES WILL NOT WORK THE FIRST TIME THE LEVER IS USED.

Extracting the rear brake pads
- Remove the rear brake calliper (see "Dismantling the rear brake calliper", in this chapter).

Extract:
- Pad springs (1).

- Brake pads.



Fitting the rear brake pads.
- Press the calliper pistons in manually.

- Fit the pads inside the calliper.

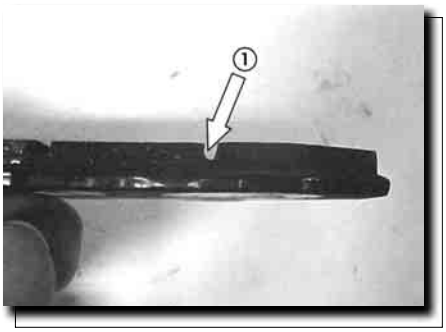
- Adjust the pad springs.

REAR WHEEL AND BRAKES

WARNING
DO NOT ATTEMPT TO RIDE THE MOTORCYCLE UNTIL THE BRAKE PEDAL IS OPERATING FULLY. PUMP THE LEVER UNTIL THE PADS ARE AGAINST THE DISK. IF NOT, THE BRAKE WILL NOT WORK THE FIRST TIME THE PEDAL IS USED.

Inspecting the pads for wear
- Removing the rear brake pads.
- Examine both brake pads.

If the wear has caused the wear indicating groove (1) to disappear, both pads must be renewed.



Extracting the rear main cylinder
- Remove the cover protecting the main cylinder. (The bolts securing the cover also support the cylinder)

- Extract the bolt and remove the flexible hose from the brake cylinder reservoir.

PRECAUTION
CLEAN OFF ANY SPILT BRAKE FLUID REMAINS IMMEDIATELY.

Fitting the rear main cylinder.
- Fit the rear main cylinder and its protective cover.

- Tighten the brake flexible hose bolt.

- Bleed the brake system pipe (consult "Bleeding the brake system pipe" in this chapter).

- Check the condition of the braking force to see if any resistance is noted or any loss of fluid.

REAR WHEEL AND BRAKES

Checking the rear main cylinder (visual check)
- Extract the main cylinder (consult "Extracting the rear main cylinder" in this section).

- Dismantle the rear main cylinder.

- Check that there are no scratches, corrosion or holes in the inner walls of the main cylinder and on the outer part of each piston.

If any damage is discovered on the master cylinder or on the pistons, change them.
- Examine the primary and secondary seals.

- If a seal is worn, soft (perished) or swollen, change the piston assembly to renew the seals.

- If you notice loss of fluid in the brake cylinder, change the seals.

Checking the rear calliper main cylinder

- Check that the anti-dust boots are not damaged.
If they are, change them.

- Check that the piston return is not damaged. If it is, renew it.

- Check that the relief port and feed port are not blocked.
if the relief port is blocked, the brake pads will bind on the disk. Inject compressed air to clean the ports.

Extracting the brake disk
- Extract the rear wheel.

- Unscrew the mounting bolts and extract the disk.

Fitting the brake disk
- Fit the brake disk to the rear wheel in such a way that the engraved side faces outwards.

- Apply a temporary blocking device to the threads of the brake disk mounting bolts.

- Tighten the rear brake disk securing bolts.

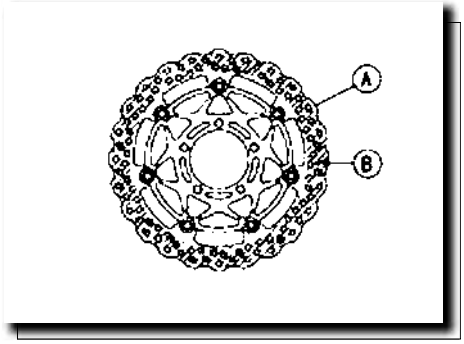
Nominal tightening torque:
10 – 12 N.m (1,0 – 1,2 kgf.m)

REAR WHEEL AND BRAKES

Brake disk wear
- Measure the thickness of the disks (A) at the point where they are most worn.

- If the disk is more worn than specified in the service limit, renew it.

Measurement area (B).



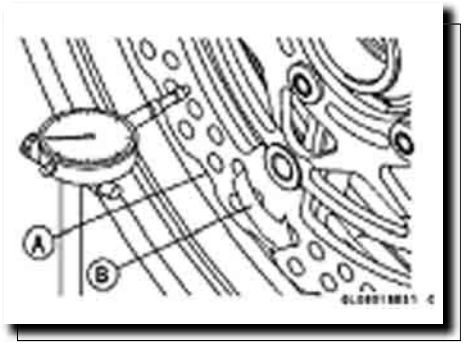
Standard brake disk thickness:
3,80 – 4,10 mm

Service limit:
3,50 mm

Brake disk distortion
- Raise the motorcycle on the jack so that the tyre is clear of the ground.

- Place a dial calibrator against the disk (A) as shown, and measure the disk's deviation from centre as the tyre is turned (B) by hand.

- If the deviation from centre exceeds the service limit, renew the disk.



Disk deviation from centre:
Standard:
Inferior a 0,15 mm

Service limit:
0,3 mm

Bleeding the brake system pipe
The brake fluid has a very low compression coefficient, with the result that almost all the movements of the brake lever are transmitted directly to the calliper for braking. Air however compresses easily. When air enters the brake system pipes, the movement of the brake lever is partially used up in compressing the air. This causes the pedal to feel spongy and leads to a loss of braking power.

WARNING
BE SURE TO BLEED AIR OUT OF THE BRAKE SYSTEM WHEN THE BRAKE LEVER FEELS SPONGY AFTER CHANGING THE BRAKE FLUID OR WHEN THE BRAKE SYSTEM PIPE HAS BEEN LOOSENED FOR ANY REASON.

REAR WHEEL AND BRAKES

Extract:
Reservoir cap (threaded)
- Fill the reservoir with brake fluid up to the top reservoir line.

- With the cap removed, pump the brake pedal slowly several times until no bubbles can be seen rising through the liquid. Purge the air completely from the main cylinder using the following procedure:

- Remove the transparent plastic cap from the bleed valve and place the other end of the pipe in a container.

- Repeat the following procedure until there is no air left emerging from the plastic pipe:

- Pump the brake pedal until it becomes hard and holds the brakes down.

- Open and close the purge valve quickly while keeping the brake on.

- Release the brake.

NOTA
CHECK THE FLUID LEVEL FREQUENTLY DURING THE BLEEDIING OPERATION AND REPLENISH THE RESERVOIR WITH BRAKE FLUID WHEN NECESSARY. IF THE RESERVOIR EMPTIES COMPLETELY OF BRAKE FLUID AT ANY TIME THE DURING BLEEDING PROCEDURE, PERFORM THE BLEEDING PROCEDURE ALL OVER AGAIN FROM THE BEGINNING, SINCE AIR WILL HAVE ENTERED THE PIPE. TAP THE BRAKE PIPE LIGHTLY FROM THE CALLIPER TO THE RESERVOIR TO ACHIEVE A MORE COMPLETE BLEEDING.

- Extract the transparent plastic pipe.

Fit:
- Reservoir cap.

- Tighten the bleed valve and fit the rubber hood.

- Check brake fluid level.

- Once the bleeding process has been carried out, check the efficiency of the brake to see if there is any resistance or any fluid loss.

REAR WHEEL AND BRAKES

WARNING
WHEN WORKING WITH THE DISK BRAKE, TAKE THE FOLLOWING PRECAUTIONS:

1) NEVER RE-USE BRAKE FLUID.

2) DO NOT USE FLUID FROM A CONTAINER THAT HAS BEEN LEFT OPEN OR HAS BEEN LEFT UNUSED FOR A PROLONGED PERIOD OF TIME.

3) DO NOT MIX TWO TYPES OR BRANDS OF FLUID FOR USE IN THE BRAKE. THIS REDUCES THE BRAKE FLUID EVAPORATING POINT AND MAY RESULT IN THE BRAKES NOT WORKING EFFICIENTLY. IN ADDITION, IT MAY CAUSE DETERIORATION OF THE BRAKE PARTS.

4) DO NOT LEAVE THE RESERVOIR CAP OFF AT ANY TIME, TO PREVENT CONTAMINATION OF THE FLUID.

5) DO NOT CHANGE THE FLUID IN RAINY OR VERY WINDY CONDITIONS.

6) EXCEPT ON THE BRAKE LININGS AND THE DISK, USE ONLY BRAKE FLUID, ISOPROPILIC ALCOHOL OR ETHYL ALCOHOL FOR CLEANING BRAKE PARTS. DO NOT USE ANY OTHER TYPE OF LIQUID FOR CLEANING THESE PARTS.
PETROL, ENGINE OIL OR ANY OTHER PETROLEUM DISTILLATE WILL CAUSE RUBBER PARTS TO DETERIORATE. IF OIL IS SPILT ON ANY PART, IT WILL BE DIFFICULT TO CLEAN COMPLETELY AND MAY DETERIORATE THE RUBBER USED IN THE DISK BRAKE.

7) ON HANDLING THE DISK BRAKE LININGS OR THE DISK, TAKE CARE TO ENSURE THAT NO BRAKE FLUID COMES INTO CONTACT WITH THEM. CLEAN ANY REMAINS OF BRAKE FLUID THAT ACCIDENTALLY COMES INTO CONTACT WITH THE LININGS OR WITH THE DISK WITH A SOLVENT WITH A HIGH INFLAMMATION POINT. DO NOT USE ONE THAT LEAVES GREASY RESIDUES. IF LININGS CANNOT BE CLEANED SATISFACTORILY, CHANGE THEM FOR NEW ONES.

8) BRAKE FLUID DESTROYS PAINTED SURFACES RAPIDLY. CLEAN OFF ANY SPILT REMAINS IMMEDIATELY.

9) IF ANY OF THE BRAKE SYSTEM PIPE SECURING SYSTEMS OR THE BLEED VALVE OPENS AT ANY TIME, THE AIR CAN BE BLED FROM THE BRAKE SYSTEM PIPE.

REAR WHEEL AND BRAKES

INSPECTING THE REAR WHEEL

1. Inspect:
- Rear wheel axle
- Rear wheel
- Rear wheel bearings
- Retaining rings

See the "**REAR WHEEL**" section

2. Measure:
- Distortion of the rear wheel

See the **"REAR WHEEL"** section

FITTING THE REAR WHEEL

Reverse the "**DISMANTLING**" procedures. Take care with the following points:

1. Fit:
- Rear wheel.

2. Adjust:
- Drive chain tension

See the "**ADJUSTING THE DRIVE CHAIN**" section in "**CHAPTER 3**.

3. Tighten:
- Rear wheel axle.
- Axle nut (rear wheel) (1).

Nut (rear wheel axle):
110-130N.m (11- 13kgf.m)

4. Check:
- Brake pedal play

See the "**ADJUSTING THE REAR BRAKES**" section in **CHAPTER 3**.

TRANSMISSION

DISMANTLING

1. Place the motorcycle on a flat surface.

WARNING
ENSURE THAT THE MOTORCYCLE IS SUPPORTED FIRMLY AND THERE IS NO RISK OF IT FALLING.

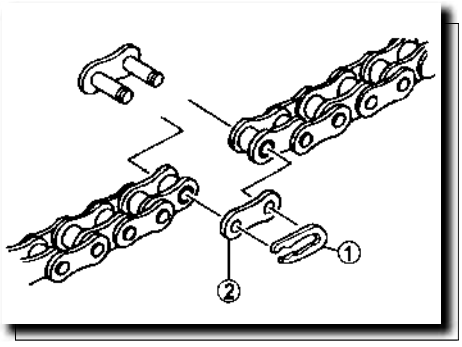
2. Extract:
- Gear change pedal
- Left hand crankcase cover
- Pinion

See the "**DISMANTLING THE ENGINE**" section in **CHAPTER 4.**

3. Extract:
- Rear wheel

See the **"REAR WHEEL"** section.

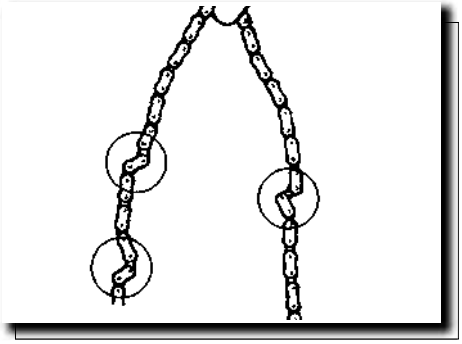
4. Extract:
- Coupling circlip(1).
- Coupling plate (2).
- Coupling link.
- Drive chain



5. Extract:
- Chain sprocket, by removing the bolts.

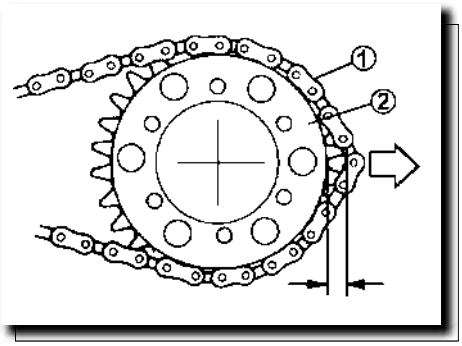
TRANSMISSION

INSPECTING THE DRIVE CHAIN



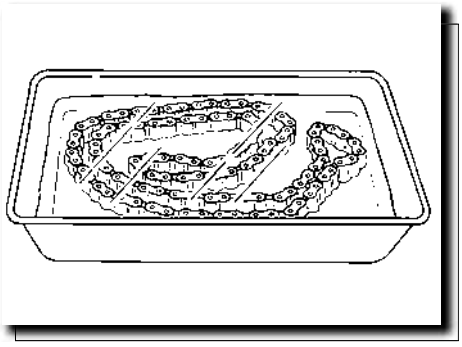
1. Inspect:
- Chain stiffness

Stiffness => **Clean and lubricate, or replace**.



2. Inspect:
- Drive chain (1).
- Chain sprocket (2).

More than ½ tooth of wear => **Replace the whole chain.**



3. Clean:
- Drive chain

Place the chain in a container with petrol and brush it to remove as much of the dirt as possible. Then remove the chain from the petrol, dry and lubricate it.

Lubricant for the drive chain:
Engine oil

CHAIN SPROCKET

1. Fit:
- Chain sprocket.
- Nut.

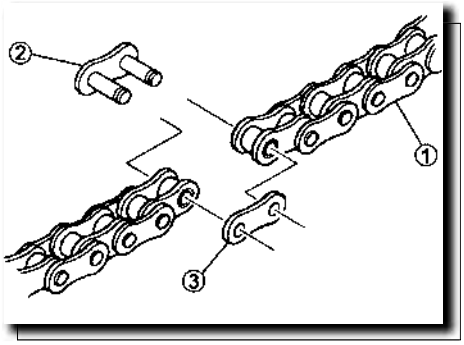
Chain sprocket nuts:
25 – 29 N.m (2,5 – 2,9 kgf.m)

TRANSMISSION

FITTING THE CHAIN SPROCKET AND THE DRIVE CHAIN

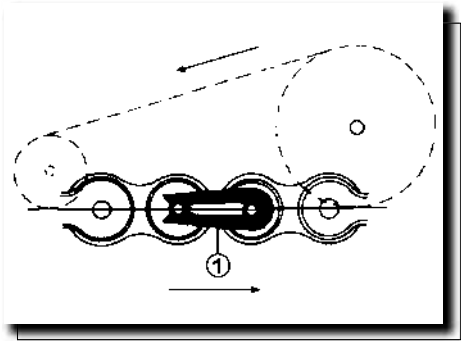
1. Fit:
- Chain sprocket assembly

2. Fit:
- Drive chain (1).
- Coupling link (2).
- Coupling plate (3).



3. Fit:
- Circlip (1).

ATTENTION
FIT THE CHAIN COUPLING CIRCLIP FACING IN THE DIRECTION INDICATED IN THE FIGURE



4. Fit:
- Pinion
- Gear change pedal

See the **"DISMANTLING THE ENGINE"** section in **CHAPTER 4.**

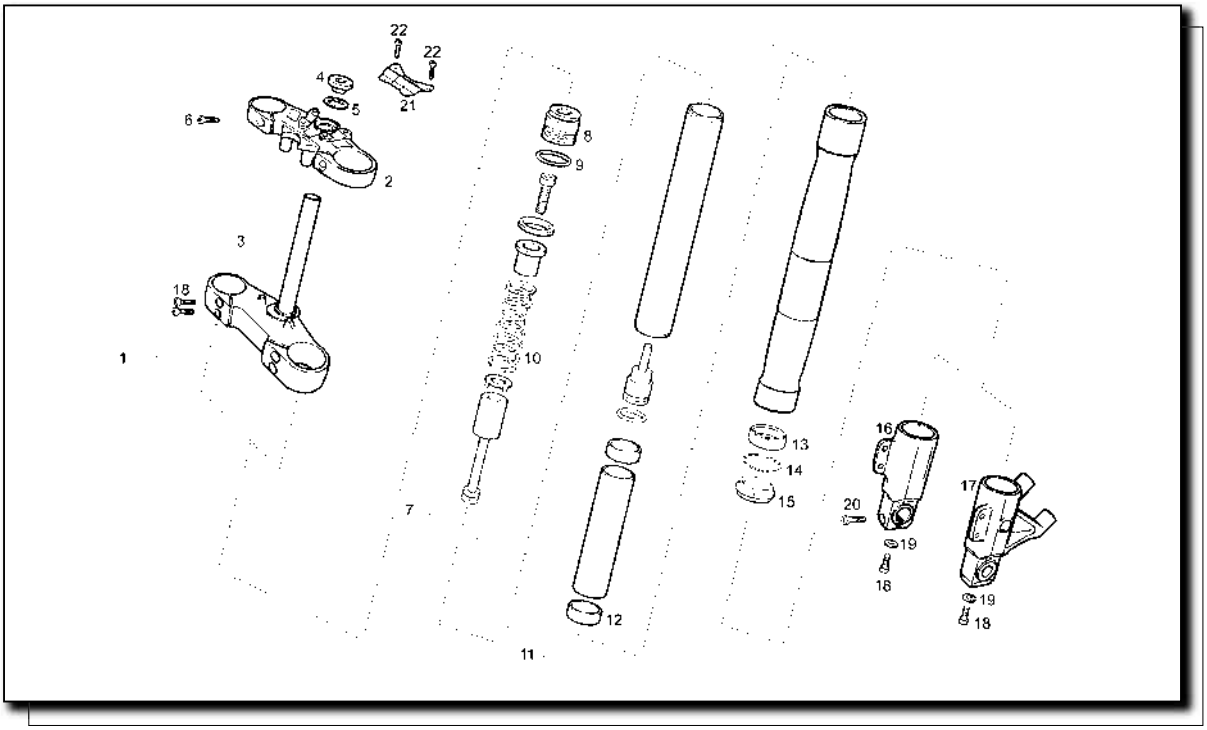
5. Adjust:
- Drive chain tension

See the **"ADJUSTING THE DRIVE CHAIN TENSION"** section in **CHAPTER 3.**

6. Tighten:
- Wheel axle.

FORKS

FORK



1	Forks 2 (with the numbers ...
2	Forks top plate
3	Rod-bottom plate sub-assembly
4	Rod-forks securing nut
5	Securing washer
6	M8 Allen screw
7	Hydraulic tube sub-assembly
8	Fork stem plug
9	Stem pipe plug O-ring
10	Fork spring
11	Fork stem tube assembly
12	Fork stem guide bush
13	Fork stem retaining ring
14	Fork-stem retaining ring base washer
15	Dust boot
16	Right hand fork end mounting
17	Left hand fork end mounting
18	M8 Allen screw
19	Washer
20	M8 Allen screw

FORKS

DISMANTLING FRONT SUSPENSION

ATTENTION
TO CARRY OUT THE PROCESS OF DISMANTLING THE FORKS WITHOUT REMOVING THEM FROM THE BOTTOM PLATE. TO DO SO, HOLD THE FORKS IN A BENCH VICE BY THE STEERING COLUMN, THEREBY PREVENTING THEM FROM BEING SCRATCHED.

- Extract the top closing bolt.

- Remove the top bolt.

ATENCIÓN
THE BOTTOM BAR OF THE FORKS WILL COME FREE. HOLD IT TO PREVENT IT FROM FALLING.

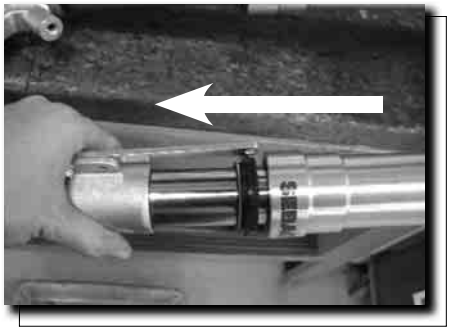
Have ready a suitable sized container in which to drain off the hydraulic fluid from each bar (pump the fork stem assembly in order to ensure it is completely drained).

FORKS

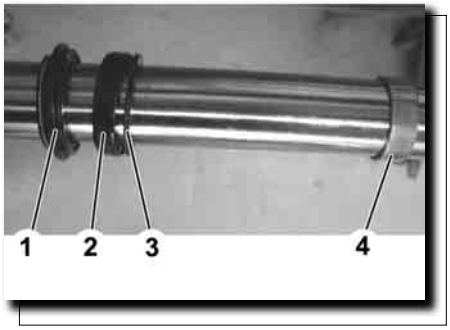
Extract the spring and the preload spacer.

- Extract the oil seal dust guard together with its security circlip.

- Firmly separate the bar from the fork stem.



Extract the elements:
- Dust guard (1).
- Oil seal (2).
- Washer (3).
- Scraper (4).



FORKS

- Proceed with cleaning and degreasing all the front suspension components, so that they can be subsequently checked.

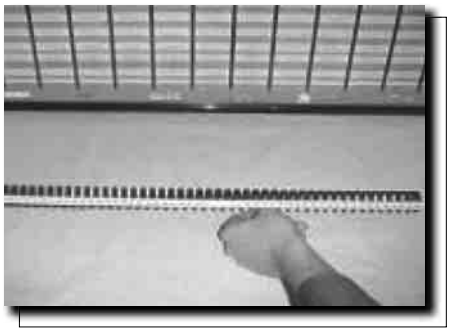
INSPECTING THE FRONT FORKS

- Check the degree of wear on the suspension bar guide bush. Replace it in the event of it being damaged on over 30% of its total surface.

- With the aid of some X-shaped chocks and a comparison meter fitted on a fixed support, determine the degree of non-alignment of the bar.

Service limit:
0,4 mm.

- Check the length of the suspension spring, as well as its distortion and/or lack of parallelism.



- Check the state of the rebound spring and the airtight O-ring. Replace them in the event of evident distortion or damage.

Clean and degrease all the elements making up the assembly, ready for reassembly.

FORKS

Reassemble the assembly, paying special attention to the tightening of the fork stem, as well as the fitting of the oil seal, putting a little oil on its edges and inserting it with the aid of the special tool. Refill the hydraulic fluid and do not forget to insert the preload bush between the spring and the closing plug.

N.B.
TO FIT THE OIL SEAL, USE THE SPECIAL TOOL DESIGNED SPECIALLY FOR THIS OPERATION (AS IN THE PHOTO).

Ø 40 fork oil seal fitting tool:
00H05100101

SUSPENSION	FREE LENGTH OF SPRING (MM)	cm^3 OIL/ BAR	TYPE OF OIL
SEBAC	851 ± 3	340 C.C.	SAE 7,5 W

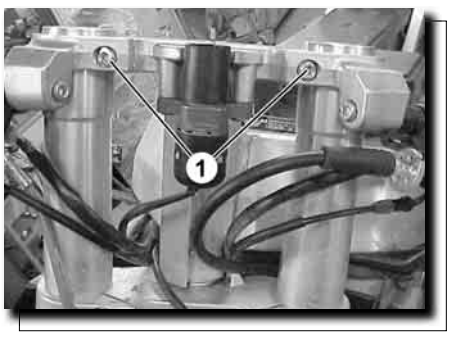
Fork elements tightening torques:

- Guide fork to the chassis
30-35 N.m (3 – 3.5 kgf.m)

- Top plate closing
17-19 N.m (1.7-1.9 kgf.m)

- Fork stem closing
17-19 N.m (1.7-1.9 kgf.m)

1. Refit all the components:
- Readjust forks to the chassis.
- Secure the top plate to the forks (bolts 1)
- Secure the top plate to the chassis (bolt 2)
- Refit the front fairing.
- Connect the headlight cables, the turn indicators and the dashboard.

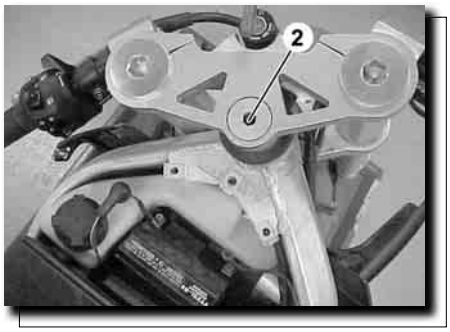


FORKS

N.B.
TIGHTEN ALL BOLTS TO THEIR NOMINAL TORQUE.

- Top forks to the chassis:
30-35 N.m (3 – 3.5 kgf.m)

- Top plate to the forks:
17-19 N.m (1.7-1.9 kgf.m)



2. Dismantle:
Front fairing
- Disconnect lighting connections.
- Disconnect dashboard connections.
- Remove the front fairing securing bolts with the frame (1).

3. Dismantle:
Top plate – Top plate bolts-forks (1) and plate-chassis (2).

4. Separate:
Forks wheel assembly (downwards).

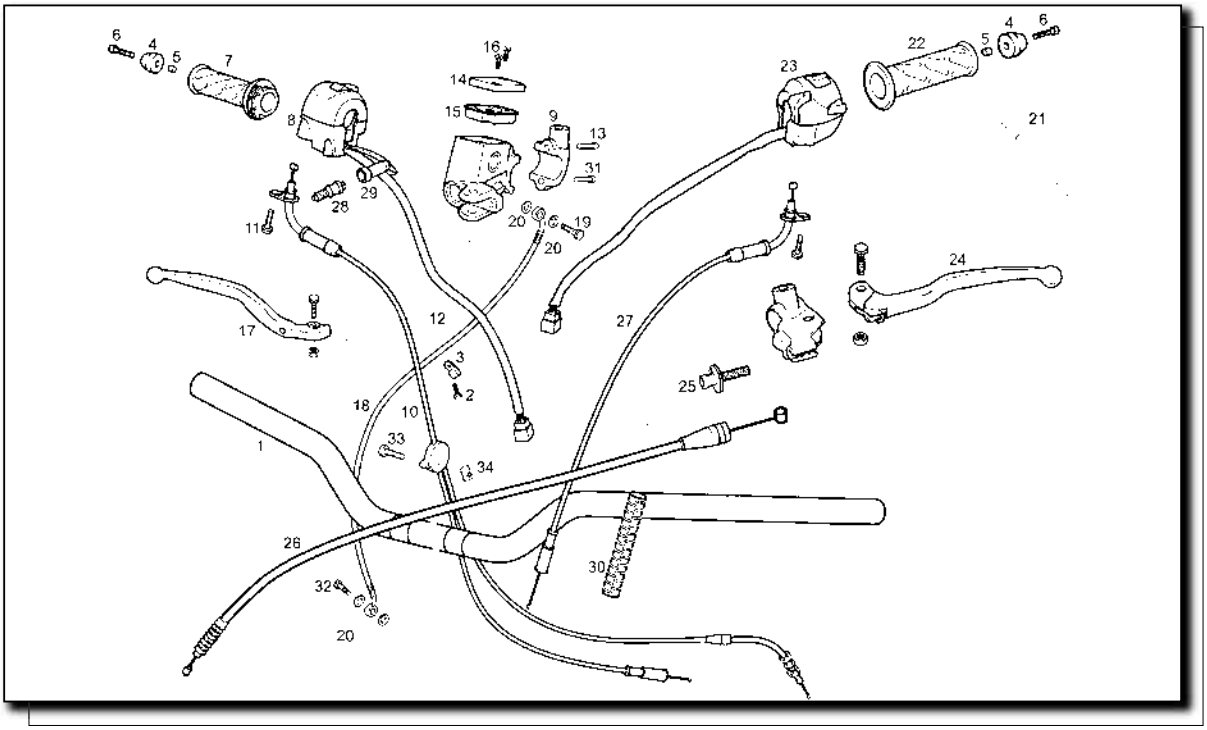
5. Check:
- Functioning (top and bottom bearings). Push the handle-bars down several times.

Irregular functioning => **Repair.**

See **"FRONT FORKS"** in **CHAPTER 6.**

HANDLEBARS

HANDLEBARS



1	Right hand semi-handlebar sub-assembly
2	Left hand semi-handlebar sub-assembly
3	M8 bolt
4	Handlebar counterweight
5	Silentblock bush
6	M5 Allen screw
7	Throttle twist-grip assembly
8	Electric starter switch assembly
9	Handlebar securing clamp
10	Throttle cable sub-assembly
11	M5 bolt
12	Front brake cylinder assembly.
13	M6 Allen screw
14	Brake fluid reservoir cover
15	Brake fluid reservoir cover gasket
16	Brake fluid cover bolt
17	Front brake lever
18	Front brake fluid pipe
19	Hydraulic pipe outlet
20	Outlet seal washer
21	Left hand lever holder assembly
22	Clutch grip
23	Light switch assembly
24	Clutch lever

25	Clutch lever tensioner
26	Clutch cable sub-assembly
27	Air cable sub-assembly
28	Stop switch
29	Switch hood
30	Cable protector
31	M6 Allen screw
32	Allen screw
33	Clamp
34	Front brake calliper outlet
35	M6 bolt
36	Securing nut

HANDLEBARS

DISMANTLING

WARNING
- ENSURE THAT THE MOTORCYCLE IS SUPPORTED FIRMLY AND THERE IS NO RISK OF IT FALLING.

- PLACE THE MOTORCYCLE ON A FLAT SURFACE.

RIGHT HAND HALF HANDLEBAR

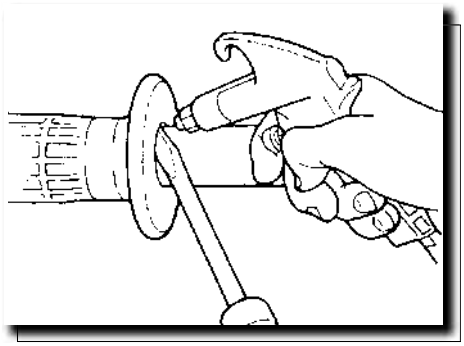
1. Extract:
- Right hand light switch assembly.
- Front brake lever assembly.
- Handlebar counterweight
- Throttle twist-grip.

2. Extract:
- Half handlebar securing bolts.

LEFT HAND HALF HANDLEBAR

1. Extract:
- Left hand switch assembly.
- Clutch lever assembly.
- Handlebar counterweight
- Left-hand grip.

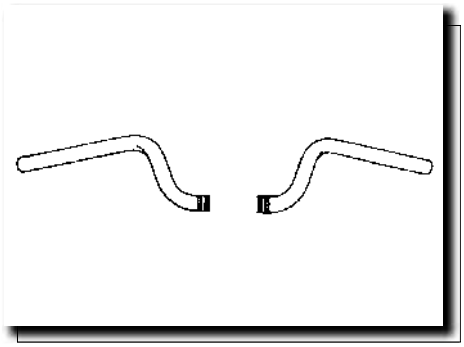
N.B.
TO REMOVE THE GRIP, BLOW WITH COMPRESED AIR BETWEEN THE HANDLEBAR AND THE SIDE RECEIVING THE ADHESIVE.



2. Extract:
- Half handlebar securing bolts.
- Half handlebar.

HANDLEBARS

INSPECTING THE HALF HANDLEBARS



1. Inspect:
- Half handlebars

Warping/cracks/damage => **Replace.**

WARNING
DO NOT ATTEMPT TO STRAIGHTEN A WARPED HANDLEBAR. THIS MAY SERIOUSLY WEAKEN THE HANDLEBARS.

DISMANTLING THE STEERING COLUMN

1. Extract:
- Top plate closing plug.
- Top plate (with half handlebars fitted to it).

2. Lift up the front of the motorcycle. The front wheel will descend.

N.B.
SUPPORT THE STEERING SHAFT FIRMLY TO PREVENT ANY RISK OF THE MACHINE FALLING.

INSPECTING THE STEERING COLUMN

- Extract the steering bearings. If they are in poor condition, change them.

N.B.
THE STEERING BEARINGS ON THIS MACHINE ARE BUILT DIRECTLY INTO THE CHASSIS.

FITTING THE STEERING COLUMN

Reverse the "**DISMANTLING**" procedures. Take note of the following points:

1. Lower the front of the machine (remove it from its support).

HANDLEBARS

2. Place the front wheel in its correct position.

3. Fit:
- Top plate, with half handlebars fitted to it.
- Top plate nut.

Top plate nut:
30-35N.m(3-3.5kgf.m)

FITTING THE HALF HANDLEBARS

1. Fit:
- Components corresponding to the side to be fitted.

2. Fit:
- The half handlebars onto the top plate.

Fitting torques:
- Plate to half handlebar nut:
17 - 19 N.m with sealer (1.7 – 1.9 kgf.m)

- Handlebar counterweight:
3.5 - 4.5 N.m (0.35 -0.45 kgf.m)

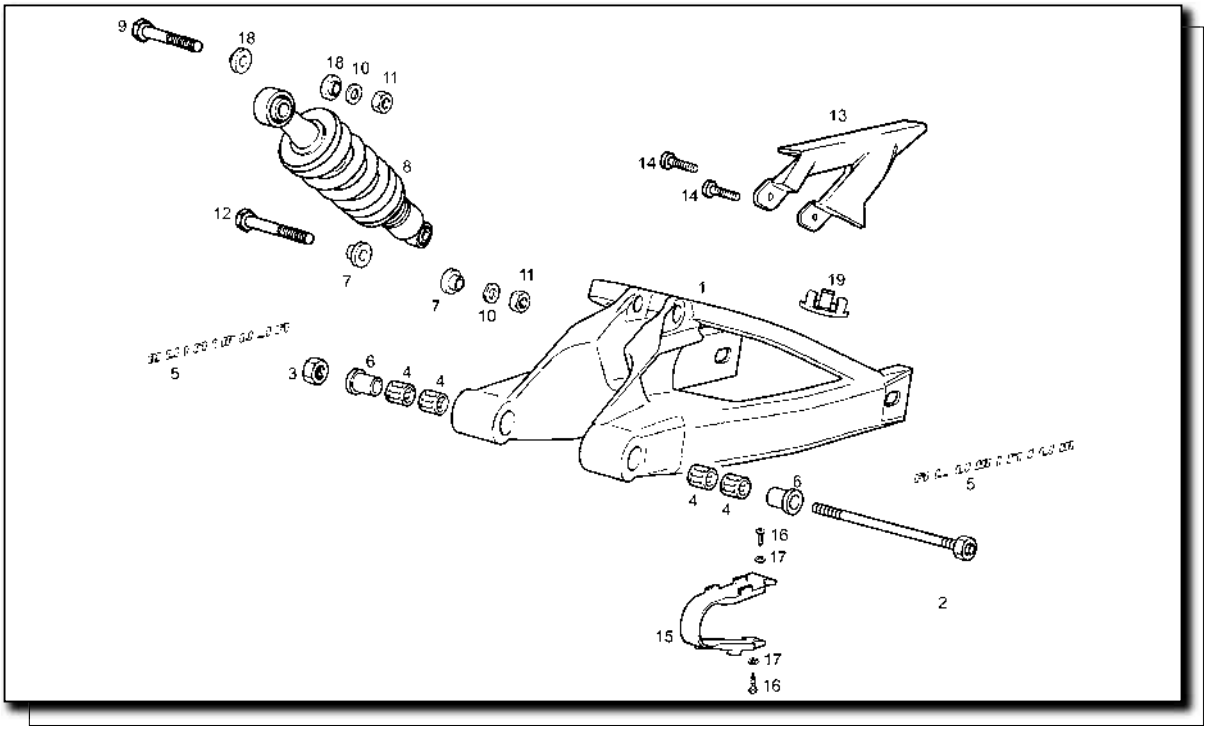
N.B.
- APPLY A THIN LAYER OF LITHIUM SOAP BASED GREASE TO THE RIGHT HAND END OF THE HANDLEBARS.

WARNING
CHECK THE FUNCTIONING OF THE THROTTLE TWIST-GRIP.

3. Adjustment
- Throttle cable play.
- Functioning of the brakes.

See the **"ADJUSTING THE BRAKE CABLES/ADJUSTING THE BRAKE LEVER"** section in **CHAPTER 3.**

SHOCK ABSORBER AND SWINGING ARM



1	Swinging arm assembly
2	Swinging arm shaft assembly
3	M14 hexagonal nut
4	Needle bearing
5	Swinging arm adhesive
6	Swinging arm stop bush
7	Shock absorber separator bottom bush
8	Shock absorber assembly
9	M10 hexagonal head bolt
10	D10 washer
11	M10 hexagonal nut
12	M10 hexagonal head bolt
13	Chain cover
14	Countersunk head bolt
15	Chain rubbing plate
16	Self-locking bolt
17	Flat washer
18	Shock absorber separator top bush

SHOCK ABSORBER AND SWINGING ARM

DISMANTLING

1. Place the motorcycle on a flat surface.

WARNING
ENSURE THAT THE MOTORCYCLE IS SUPPORTED FIRMLY AND THERE IS NO RISK OF IT FALLING.

2. Extract:
- Rear wheel.
- Wheel sprocket.
- Brake disk.
- Rear calliper.

See the "**GEAR RATIO**" section.

3. Extract:
- Nut (top and bottom).
- Shock absorber.

4. Extract:
- Swinging arm shaft nut.
- Wheel axle nut.
- Washers (swinging arm).
- Shafts.
- Swnging arm.

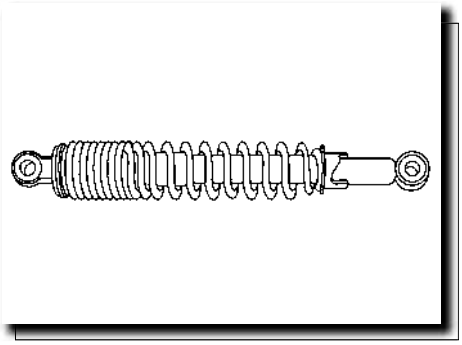
INSPECTION

1. Inspect:
- Swinging arm play
Play => **Tighten the joint shaft nut or replace the bushes.**

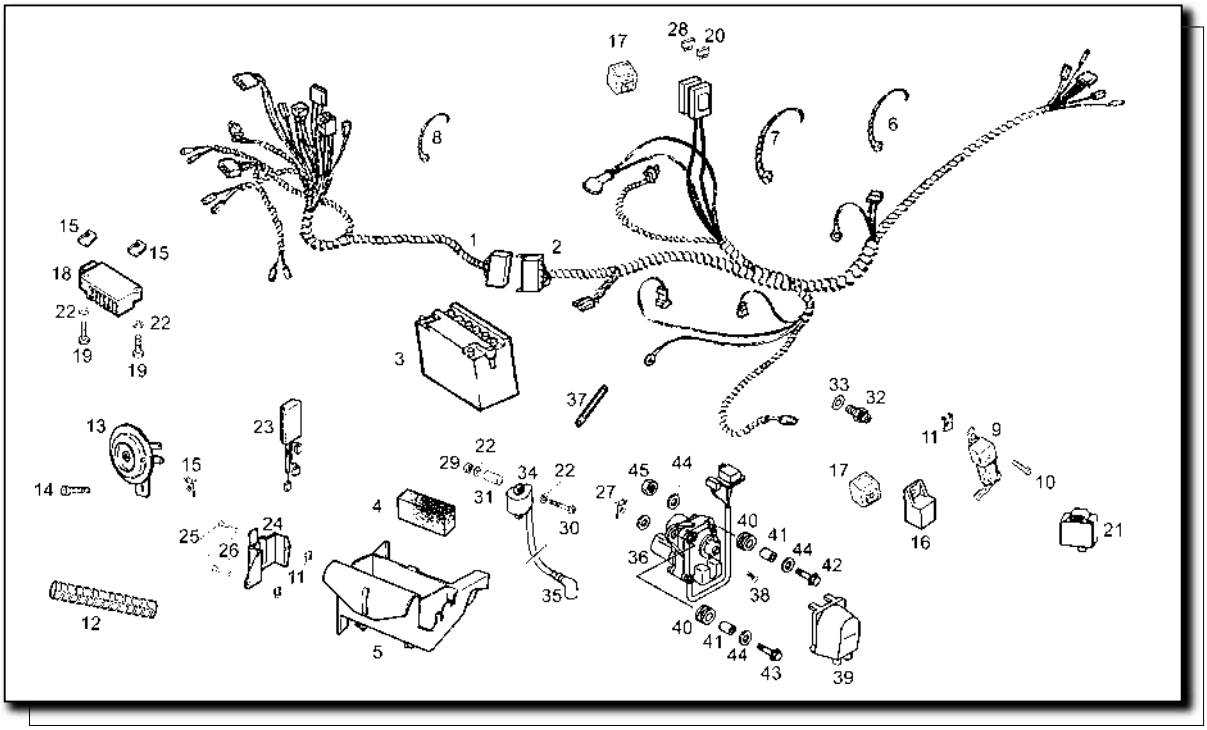
- Swinging arm vertical movement
Irregular movement/warping/stains => **Replace the bushes.**

- Swinging arm vertical movement
Irregular movement/warping/stains => **Replace the bushes.**

2. Inspect:
- Shock absorber Fluid leaks/damage => **Replace the shock absorber.**



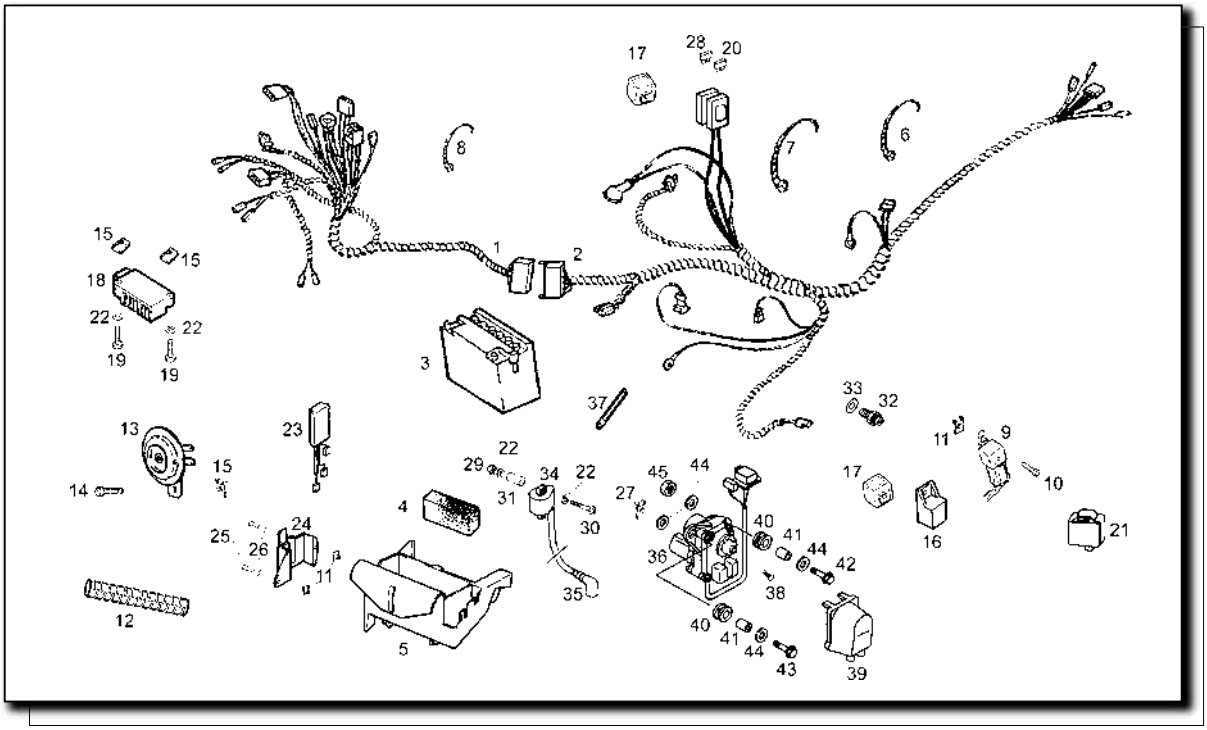
ELECTRICAL SYSTEM



1	Front electrical wiring system
2	Rear electrical wiring system
3	Front right hand headlight assembly
4	Front left hand headlight assembly
5	Bolt
6	Flat washer
7	Front headlight bulb
8	Front pilot light assembly
9	Pilot light fitting
10	Pilot light brake bulb
11	Pilot light sidelight bulb
12	Sidelight cluster sub-assembly
13	Screw
14	Clutch spring stop washer
15	Rear right hand turn indicator assembly.
16	Rear leftt hand turn indicator assembly.
17	Washer
18	M10 hexagonal nut
19	Battery
20	Battery stop foam
21	Battery support
22	Cable joining fastener
23	Cable joining fastener
24	Cable joining fastener

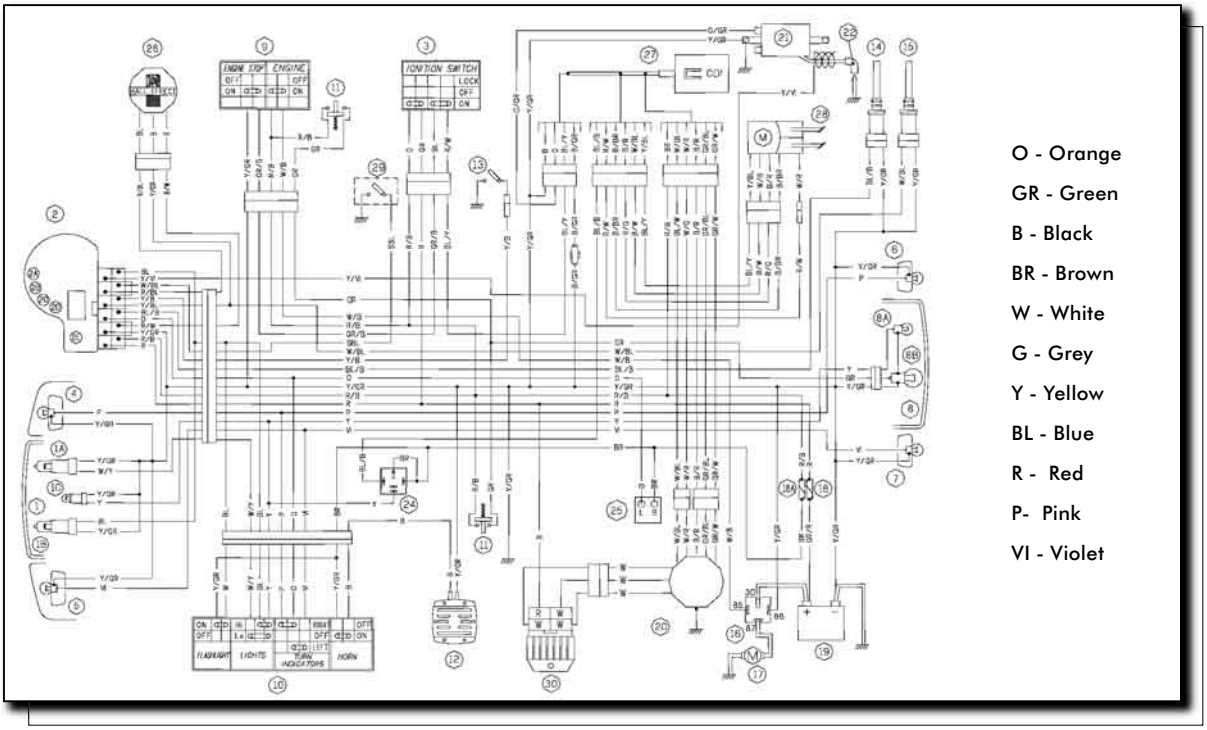
25	Flasher relay
26	M6 crosshead screw
27	Front shield securing bolt
28	Cable protector
29	Horn assembly
30	M6 bolt sub-assembly
31	Securing nut
32	Electric starter relay assembly
33	Starter relay elastic support
34	Regulator
35	M6 crosshead screw
36	7.5A fuse
37	Sidelight bulb assembly
38	Sidelight light unit assembly
39	Number plate light assembly
40	Number plate light bulb holder assembly
41	M5 Allen screw
42	M5 self-locking nut
43	Turn indicators control unit assembly
44	Mechanised flat washer
45	DIU
46	DIU securing clip
47	M5 crosshead screw
48	Flat washer

ELECTRICAL SYSTEM



49	Securing nut
50	15A fuse
51	M6 self-locking nut
52	M6 Crosshead screw
53	Coil separator bush
54	Neutral switch
55	Seal
56	Coil
57	Spark plug cap
58	Escape valve motor.
59	Exhaust valve pulley
60	Bolt
61	Escape valve motor cover
62	Anti-vibration rubber
63	Bush
64	M6 crosshead screw
65	M6 bolt
66	Washer
67	M6 self-locking nut
68	M6 fairing nut
69	Clip
70	Turn indicator light

ELECTRICAL SYSTEM



1	Front headlight
1A	12v 35W R/H front headlight dipped beam
1B	12v 35W L/H front headlight main beam
1C	12v 2.3W sidelight bulb
2	Dashboard assembly
2A	Water temperature indicator LED
2B	Oil level LED
2C	Fuel level LED
2D	Main beam indicator LED
2E	Turn indicator LED
3	Ignition switch
4	12v 10W front R/H turn indicator light
5	12v 10W front L/H turn indicator light
6	12v 2.3W rear R/H turn indicator light
7	12V 2.3W rear L/H turn indicator light
8	Pilot light
8A	12v 2.3W pilot light
8B	12V 16W stop light
9	Stop and start switch
10	Horn-turn indicator-flasher switch.
11	Stop switch
12	Horn
13	Water temperature thermocontact
14	Oil reserve sensor

15	Fuel reserve sensor
16	Starter relay
17	Starter motor
18	15A fuse
18A	7.5A fuse
19	12V 4Amp Battery
20	Magneto
21	Electronic HT converter
22	Anti-interference plug cap
23	Spark plug
24	12v30/20A lights relay
25	12v 10/10w turn indicator unit
26	Electronic resend (Hall effect)
27	DIU
28	SERVO-MOTOR
29	Neutral switch
30	Direct current 12v regulator

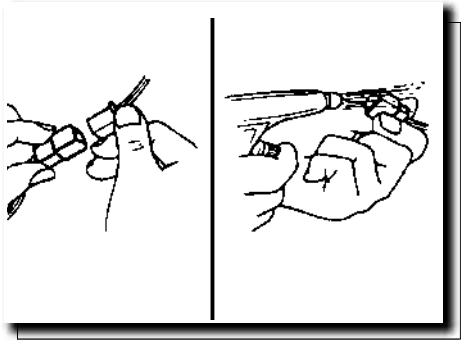
ELECTRICAL SYSTEM

CHECKING CONNECTORS

Check for corrosion, damp etc. in the connectors.

1. Disconnect:
- Connectors

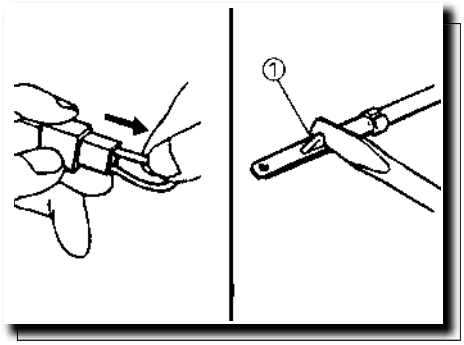
2. Dry each of the terminals with compressed air.



3. Connect and disconnect two or three times.

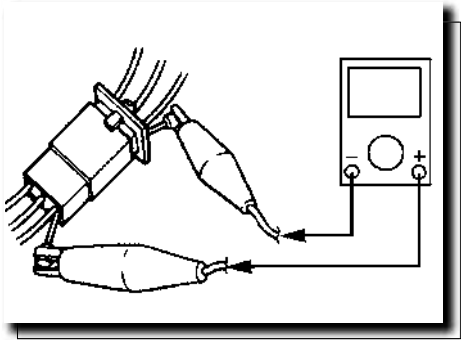
4. Pull the conductor to check if it is loose.

5. If the terminal comes loose, bend the pin (1) and refit the terminal in the connector.



6. Connect:
- Connector

N.B.
THE TWO PARTS OF THE CONNECTOR MAKE A SOUND WHEN THEY FIT TOGETHER.



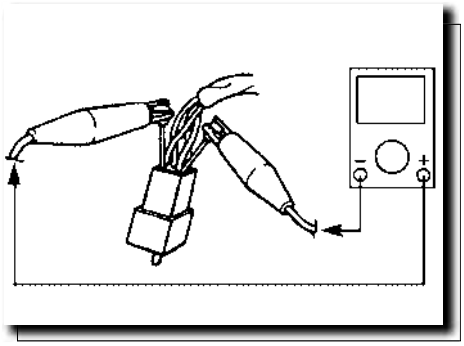
7. Check the circuit with a Multimeter.

N.B.
- IF THERE IS NO CIRCUIT, CLEAN THE TERMINALS.

- FOLLOW THE STEPS FROM (1) TO (7) ABOVE ON INSPECTING THE ELECTRICAL SYSTEM.

- AS A PROVISIONAL SOLUTION, USE A CONTACT CLEANER.

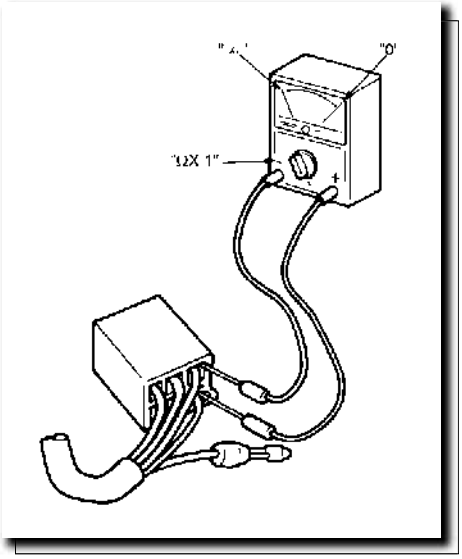
- USE THE MULTIMETER IN ACCORDANCE WITH THAT INDICATED IN THE FIGURE.



INSPECTING THE SWITCHES

INSPECTION STEPS

Using a multimeter, check the circuit between the terminals to make sure that they are correctly connected. Replace the component if any of the combinations gives an incorrect reading.



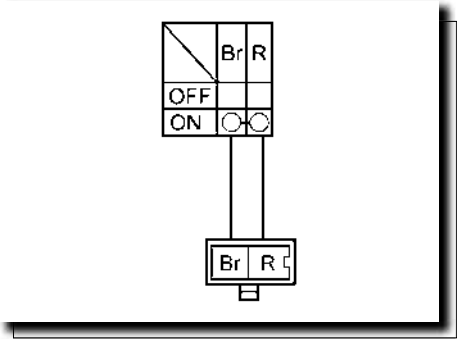
N.B.
- SWITCH THE "**ON**" AND "**OFF**" SWITCH ON AND OFF SEVERAL TIMES.

- ADJUST THE METER SELECTOR TO THE "**X1**" POSITION.

- ADJUST THE GAUGE TO "**ZERO**".

CONNECTIONS FOR THE SWITCHES SHOWN IN THIS MANUAL

This manual contains connection tables like this one in the figure on the left, showing the switch terminal connections (main switch, brake switch, light switch, etc.).



The column on the far left indicates the different switch positions, the top line indicates the colours of the conductors connected to the switch terminals.

" O–O "indicates the terminals between which there is closed circuit at a determined switch position.

In this table:
"BR and "R" have a closed circuit with the switch in the "ON" position.

TROUBLESHOOTING

IF THE IGNITION SYSTE FAILS (NO SPARK OR INTERMITTENT SPARK)

PROCEDURES
Check:

1. **Spark plug.**
2. **Gap between electrodes**
3. **Resistance of the connector**
4. **Ignition coil.**
5. **Main switch.**
6. **Resistance of the impulse coil.**
7. **Resistance of the field coil.**
8. **Ignition system connections.**

N.B.
- REMOVE THE FOLLOWING PARTS BEFORE DIAGNOSIS: 1) FAIRING AND SEATS

1. Spark plug

- Check the spark plug condition.
- Check the type of spark plug.
- Check the gap between the electrodes.

See "**SPARK PLUG INSPECTION**" in **CHAPTER 3**.

Gap between electrodes:
0.7 ÷ 0.8 mm

Standard spark plug
NGK BR8ES

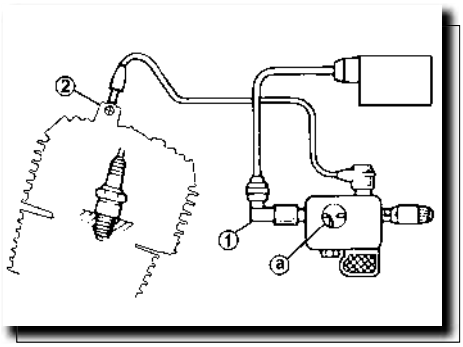
OUTSIDE THAT SPECIFIED

Renew the spark plug.

CONFORMS TO SPECIFICATIONS

2. Gap between electrodes

- Disconnect the spark plug connector.
- Connect the spark tester (1) as in the figure (2) Spark plug.
- Turn the main switch to "ON".
- Check the gap between the electrodes (a).
- Start the engine and increase the gap until the spark begins to fail.



Minimum electrode gap:
6 mm

CONFORMS TO SPECIFICATIONS

The ignition system is normal.

OUTSIDE THAT SPECIFIEDOUTSIDE THAT SPECIFIED

TROUBLESHOOTING

3. Resistance of the spark plug connector

- Remove the connector.
- Connect the Multimeter (Ω x 1) to the spark plug connector.

N.B.
- ON REMOVING THE SPARK PLUG CONNECTOR, DO NOT PULL IT WITH THE SPARK PLUG LEAD.

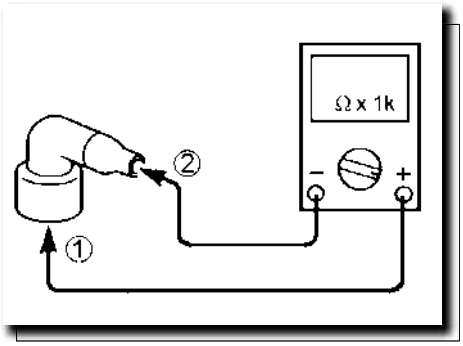
REMOVAL =>**TURN IN AN ANTI-CLOCKWISE DIRECTION.**
FITTING => **TURN IN A CLOCKWISE DIRECTION.**

- CHECK THE SPARK PLUG LEAD WHEN CONNECTING THE CONNECTOR.

- ON CONNECTING THE CONNECTOR, CUT THE SPARK PLUG LEAD BACK APPROCIMATELY 5MM.

Resistance of the connector
5KΩ ± 20% a 20°C

Terminal (+) ⟶ Spark plug side(1).
Terminal (-) ⟶ Spark plug lead side (2).



OUTSIDE THAT SPECIFIED

Renew the spark plug connector

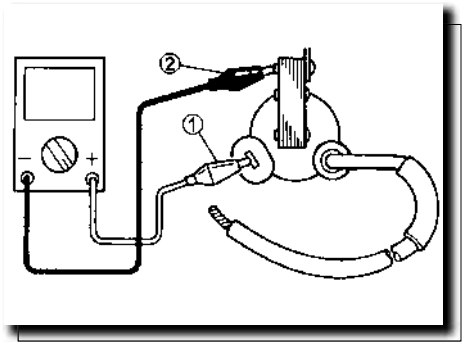
CONFORMS TO SPECIFICATIONS

3. Ignition coil resistance

- Disconnect the ignition coil connector from the electrical system.
- Connect the Multimeter (Ωx 1) to the ignition coil.
- Check the resistance of the coil primary winding.

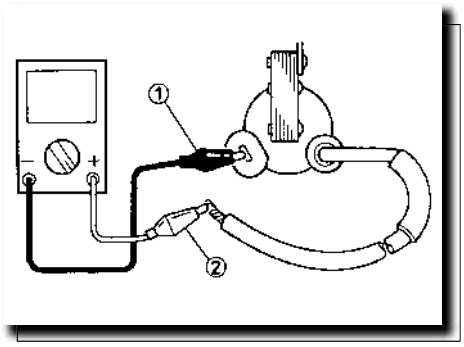
Resistance of the primary winding:
0.23 ± 20 % a 20°C

Terminal (+) ⟶ Green/Black Terminal (1).
Terminal (- ⟶ Yellow/Green Terminal (2).



TROUBLESHOOTING

Terminal (+) ⟶ Orange / Green (1)
Terminal (-) ⟶ Spark plug lead (2)



- Connect the Multimeter (Ω x 1) to the ignition coil.
- Check the resistance of the coil secondary winding.

Secondary winding resistance:
7.9 ± 20 % a 20°C

OUTSIDE THAT SPECIFIED → Renew the ignition coil.

BOTH CONFORM TO SPECIFICATIONS

5. Main switch (ignition key)

See the **"INSPECTING THE SWITCHES"** section.

NO CIRCUIT → Renew the main switch (ignition key)

CIRCUIT

6. Impulse coil resistance

- Disconnect the impulse coil connector from the electrical system.
- Connect the Multimeter (x 100) to the impulse coil connector.

Terminal (+) ⟶ White/Red Terminal
Terminal (-) ⟶ White/Blue Terminal

- Check the resistance of the impulse coil.

Resistance of the impulse coil: 250Ω ±
250Ω ± 20% a 20°C

OUTSIDE THAT SPECIFIED → Replace the impulse coil.

CONFORMS TO SPECIFICATIONS

TROUBLESHOOTING

7. Charging coil resistance

- Disconnect the field coil connector from the electrical system.

- Connect the Multimeter (x 100) to the field coil connector

Terminal (+) ⟶ Black/Red Terminal
Terminal (-) ⟶ Green/White Terminal

- Check the resistance of the field coil.

Resistance of the field coil.
730 ± 20 % a 20°C

OUTSIDE THAT SPECIFIED ⟶ Outside that specified. Renew generating coil.

↓ **CONFORMS TO SPECIFICATIONS**

8. Generating coil resistance

- Disconnect the generating coil connector from the electrical system.

- Connect the Multimeter (x 100) to the generating coil connector.

Terminal (+) ⟶ Green/Blue Terminal.
Terminal (-) ⟶ Green/White Terminal.

Check the resistance of the generating coil.

Generator coil resistance:
600 ± 20% a 20°C

POOR CONNECTION ⟶ Renew field coil.

↓ **CONFORMS TO SPECIFICATIONS**

9. Ignition system connections

- Check all the ignition system connections.

See the "**CIRCUIT DIAGRAM**"

POOR CONNECTION ⟶ Put right.

↓ **CORRECT**

Replace the DIC unit.

TROUBLESHOOTING

STARTER MOTOR NOT WORKING

PROCEDURES

Check:

1. Main fuse.
2. Battery.
3. Starter motor.
4. Starter relay.
5. Ignition key.
6. Starter switch.
7. Connections.

1. Main fuse

- Remove the fuse.
- Connect the Multimeter (Ω x 1) to the fuse.
- Check that there is a circuit in the fuse.

NO CIRCUIT → Fuse defective, replace.

CIRCUIT ↓

2. Battery

- Check the condition of the battery.

See the "**INSPECTING THE BATTERY**" section in **CHAPTER 3.**

Minimum voltage:
12 V

INCORRECT → Recharge or renew the battery.

CORRECT ↓

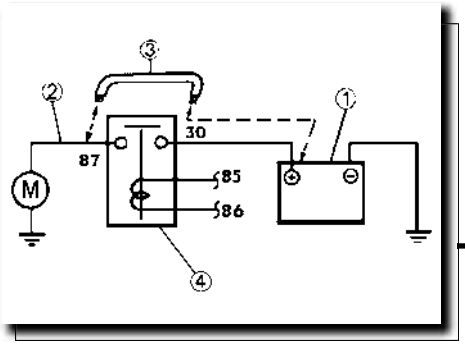
TROUBLESHOOTING

3. Starter motor

- Connect the positive terminal of the battery (1) and the starter motor cable (2), using a bridging conductor (3) on the relay (4) as shown in the figure.

*as in the figure.

WARNING
THE CONDUCTOR USED FOR BRIDGING MUST HAVE A CAPACITY COMPATIBLE WITH THAT OF THE STARTER MOTOR. IF NOT, THE MOTOR MAY BURN OUT.



DOES NOT TURN OVER

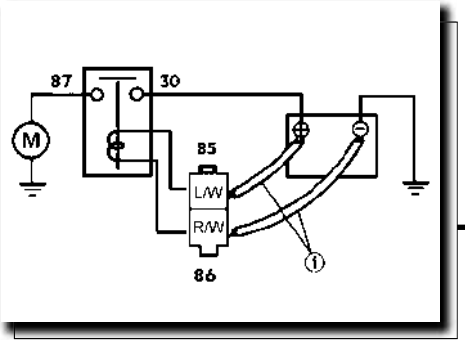
- Check starter motor functioning.

Defective starter motor – repair or replace.

TURNS OVER

4. Starter relay

- Disconnect the starter relay connection from the electrical system.
- Connect the battery to the starter relay, using bridging connectors (1).



DOES NOT TURN OVER

Check starter motor functioning.

Defective starter relay – **replace.**

TURNS OVER

WARNING
TAKE CARE NOT TO REVERSE THE BATTERY CONNECTIONS, OR DAMAGE MAY BE CAUSED TO THE DIODE TAKE CARE NOT TO CAUSE A SHORT CIRCUIT BETWEEN THE POSITIVE AND NEGATIVE TERMINALS WHEN CONNECTING **THE BATTERY AND THE RELAY.**

TROUBLESHOOTING

TURNS OVER

5. Main switch

- Disconnect the main switch connection from the electrical system.

- Check the circuit between the Red and Red/Black conductors.

See the "**INSPECTING THE SWITCHES**" section.

	O	GR	BL	R/W
LOCK				
OFF				
ON	○—○		○—○	

INCORRECT

Defective main switch - replace.

TURNS OVER

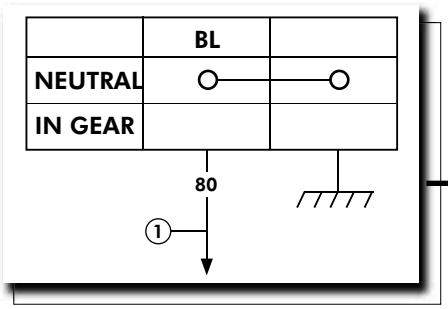
6. Neutral switch.

- Disconnect the neutral switch conductor from the electrical system.

- Check the circuit between the "Blue" (1) and the "Earth".

See the "**INSPECTING THE SWITCHES**" section.

TROUBLESHOOTING



INCORRECT

Defective neutral switch – replace.

CORRECT

7. Starter switch

- Disconnect the starter switch conductor from the electrical system.

- Check the starter switch circuit between the "Red/Black" (1) and "Black" (2) conductors.

See the **"INSPECTING THE SWITCHES"** section.

	STOP ENGINE		ENGINE	
	Y/GR	GR/B	R/B	W/B
OFF				
ON	O—O		O—O	

INCORRECT

Defective starter switch – replace.

CORRECT

8. Connections

Check the ignition system connections. See the "**INSPECTING THE SWITCHES**" section.

INCORRECT CONNECTION

Put right.

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